

Attachment: #5.

Dry Creek Water Reclamation Facility

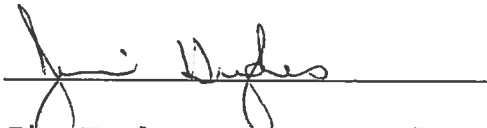
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out})))$ (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

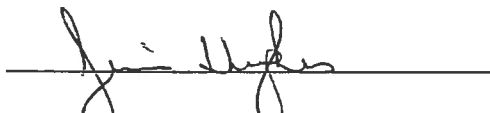
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

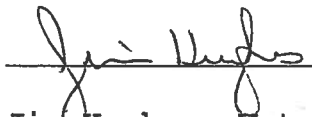
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

CHEYENNE BOPU WATER REC. LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 07/23/14
Date Received: 07/23/14
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 8/01/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 07/30/14
Analyst(s): kl

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	74.4	35.3	NA
2	79.0	36.4	NA
3	66.5	37.4	NA
4	73.2	39.2	NA
5	69.7	41.1	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 7-23-14] Time: 9:50] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 7-23-14] Time: 9:50] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 7-23-14 Time: 9:50 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 7-23-14 Time: 9:50 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 1 Rows: 1 - 5 Date: 7-23-14 Time: 9:50 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Baskin] [Date/Time: 7-23-14/9:50 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 12.17.14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 4 of 1

Client's Name: <u>D. L. Cooke WRF</u>				Contact Name: _____				Sampler's Name (if other than Contact): _____								
Report Required For: <u>Biosolids</u> <u>Zone D Rows 1-5</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> <input type="checkbox"/> HNO₃ <input type="checkbox"/> H₂SO₄ <input type="checkbox"/> 4°C <input type="checkbox"/> HCL <input type="checkbox"/> None </div> <div style="width: 15%;"> <input type="checkbox"/> Grab <input type="checkbox"/> or <input type="checkbox"/> Composite </div> <div style="width: 15%;"> <input type="checkbox"/> pH <input type="checkbox"/> Field Analysis <input type="checkbox"/> etc. </div> <div style="width: 15%;"> <input type="checkbox"/> Yes / No <input type="checkbox"/> (Lab use only) </div> </div>				Other Information (pH, Field Analysis, etc.)				Analysis Completed Yes / No (Lab use only)			
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time													
1 <u>Zone D Row 1</u>		<u>7-23</u>	<u>14</u>	<u>Water</u>				<u>None</u>								
2 <u>Zone D Row 2</u>		<u>7-23</u>	<u>14</u>	<u>Water</u>				<u>None</u>								
3 <u>Zone D Row 3</u>		<u>7-23</u>	<u>14</u>	<u>Water</u>				<u>None</u>								
4 <u>Zone D Row 4</u>		<u>7-23</u>	<u>14</u>	<u>Water</u>				<u>None</u>								
5 <u>Zone D Row 5</u>		<u>7-23</u>	<u>14</u>	<u>Water</u>				<u>None</u>								
6																
7																
Custody Record MUST be Signed		Relinquished by: <u>[Signature]</u>		Date/Time: <u>7-23-14</u>		Received by: <u>[Signature]</u>		Date/Time: <u>7-23-14</u>								
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>823</u>								

ID # 116754-22134 Permit # WYG-050002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

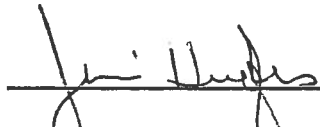
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

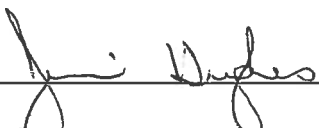
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

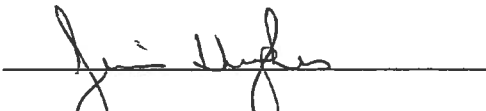
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

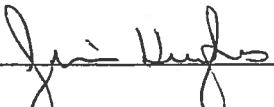
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

CHEYENNE BOPU WATER REC. LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 07/23/14
Date Received: 07/23/14
Sample Location: Zone E
Sample Matrix: Compost

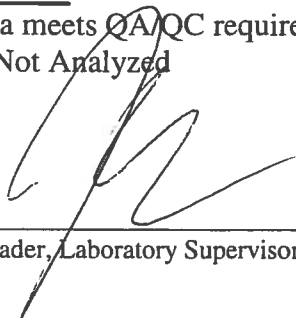
Sampled By: CB
Date Reported: 8/01/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 07/30/14
Analyst(s): kl

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	72.9	33.4	NA
2	85.3	28.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 7-23-14] Time: 10:20] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 7-23-14] Time: 10:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 7-23-14 Time: 10:20 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 2 Date: 7-23-14 Time: 10:20 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 2 Date: 7-23-14 Time: 10:20 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp STAIR Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Bupp [Date/Time: 7-23-14/10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best of my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp STAIR Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: MB
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Don Cook Corp</u>		Contact Name: <u>John H. Miller</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>B0301.16</u> <u>Zone E Row 152</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time													
1 <u>Zone E Row 1</u>		<u>7-23</u>	<u>10:10 AM</u>	<u>1 pH/mo</u>								<u>N/A</u>	<u>G</u>			
2 <u>↓ ↓ ↓ 2</u>			<u>↓</u>	<u>↓</u>								<u>↓</u>	<u>↓</u>			
3																
4																
5																
6																
7																
Custody Record MUST be Signed	Relinquished by: <u>[Signature]</u>		Date/Time: <u>7-23</u> <u>10:10 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>7-23</u> <u>10:10 AM</u>					
	Sample Disposal:		Return to client:		Lab disposal:						Log# <u>834</u>					

ID # 12762-22934

Permit # 12762-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

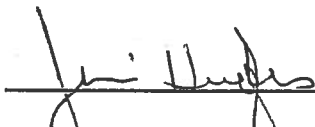
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

Dry Creek Water Reclamation Facility

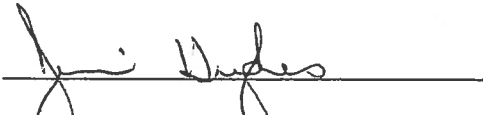
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

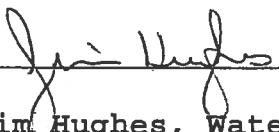
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/29/14
Date Received: 05/29/14
Sample Location: Zone A
Sample Matrix: Compost

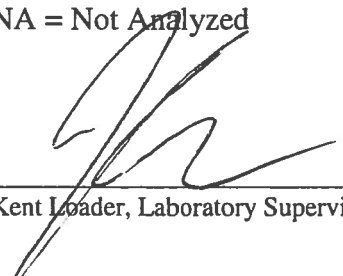
Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/03/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	66.9	25.4	NA
2	71.0	23.4	NA
3	64.4	27.5	NA
4	63.6	36.6	NA
5	66.6	24.5	NA
6	64.5	37.5	NA
7	63.3	36.8	NA
8	69.3	33.3	NA
9	69.9	35.4	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



. Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/OC

Date: 5-29-14] **Time:** 9:00] ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-29-11] Time: 9:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 5-29-14 Time: 9:00 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 5-29-14 Time: 9:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: H Rows: 1 - 9 Date: 5-29-14 Time: 9:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stod Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber Date/Time: 5-29-14/9:00AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best of my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stod Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 8-5-14] Time: 10:30] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>124 Creek WRF</u>			Contact Name: <u>John Pankov</u>			Sampler's Name (if other than Contact): _____												
Report Required For: <u>Baseline Row 1-7</u>				Number of Containers	Sample Type A W S V B O <u>Air Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time													
1	<u>Zone A Row 1</u>			<u>5-29</u>	<u>8:30 AM</u>	<u>TSU</u>										<u>10/4</u>	<u>G</u>	
2	<u>2</u>			<u>11</u>														
3	<u>3</u>																	
4	<u>4</u>																	
5	<u>5</u>																	
6	<u>6</u>																	
7	<u>7</u>																	
Custody Record MUST be Signed				Relinquished by: <u>[Signature]</u>		Date/Time: <u>5-29-14 01:41 PM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>6/2/14 2:00</u>				
				Sample Disposal: _____		Return to client: _____		Lab disposal: _____						Log# <u>302</u>				

ID # 1-156-22034

Permit # 1146-0-0002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>John P. ...</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>2.10.60 1.1.5</u> <u>2.10.60 ROW 2 8-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>2.10.60 ROW 2 8-7</u>		<u>5-24</u>	<u>8:00 AM</u>	<u>1</u>	<u>1</u>				<u>W/H</u>	<u>G</u>	
2	<u>↓ ↓ ↓ 9</u>		<u>↓</u>	<u>↓</u>	<u>1</u>	<u>1</u>				<u>↓</u>	<u>↓</u>	
3												
4												
5												
6												
7												
Custody Record MUST be Signed	Relinquished by: <u>John P. ...</u>		Date/Time: <u>5-24 11:49 AM</u>		Received by: <u>Mike W...</u>				Date/Time: <u>5-24 11:49 AM</u>			
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>803</u>			

ID # 154 SL - 227311 Permit # WV 60 - 60 0012

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

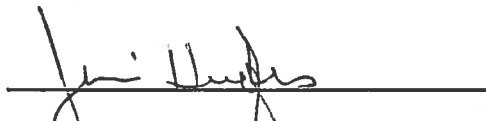
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

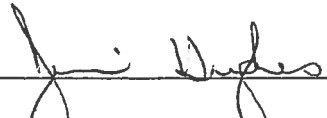
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

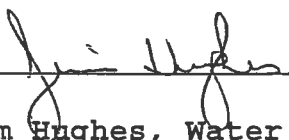
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

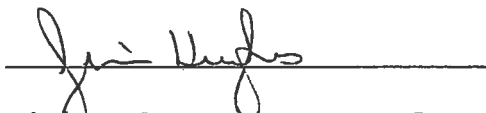
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/29/14
Date Received: 05/29/14
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/03/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	68.0	31.3	NA
2	70.7	26.6	NA
3	70.2	30.4	NA
4	64.1	33.7	NA
5	59.0	35.2	NA
6	66.4	34.5	NA
7	63.1	33.5	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

6.24.14
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-29-14 **Time:** 9:20 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-29-14] Time: 9:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 5-29-14 Time: 9:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 5-29-14 Time: 9:20 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

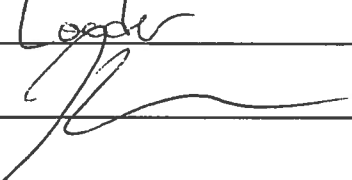
Zone: C Rows: 1 - 7 Date: 5-29-14 Time: 9:24 ☒ AM ☐ PM

Project Name: Biosolid
Location: Dry Creek WRF
Address: 8911 Campstead Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barbell | Date/Time: 5-29-14/9:20 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstead Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Cooper
This Certification is signed by: 

Date: 8-5-14 | Time: 10:30 ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: Dry Creek Contact Name: Chet Lindell Sampler's Name (if other than Contact): _____

Report Required For:			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
Zone C Rows 1-7 1 Zone C Row 1 2 3 4 5 6 7													

Custody Record MUST be Signed	Relinquished by: <u>Chet Lindell</u>	Date/Time: <u>9-29-14</u> <u>7:00 AM</u>	Received by: <u>Michael A. [unclear]</u>	Date/Time: <u>[unclear]</u>
	Sample Disposal: _____ Return to client: _____ Lab disposal: _____			Log# <u>804</u>

ID # 1 VSI - 22931 Permit # Dry C - 650001

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

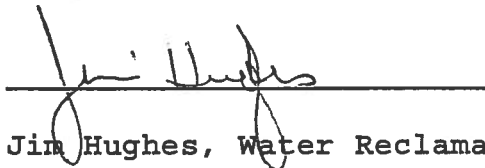
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

A handwritten signature in dark ink, appearing to read "Jim Hughes", is written over a horizontal line.

Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

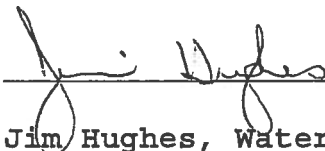
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

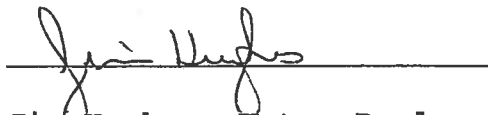
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/29/14
Date Received: 05/29/14
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/03/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	60.7	38.2	NA
2	62.1	38.7	NA
3	69.1	36.8	NA
4	65.2	38.0	NA
5	62.9	37.5	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-29-14 **Time:** 9:00 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Chevenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-29-14] Time: 9:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 5-29-11 Time: 9:00 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 5-29-14 Time: 9:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 5-24-14 Time: 9:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Benoit [Date/Time: 5-29-14 / 9:00 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 8/5/14 | Time: 10:30 ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Day Creek WRF</u>		Contact Name: <u>Chet</u>		Sampler's Name (if other than Contact): _____									
Report Required For: <u>Prostate</u> <u>Zone D - Rows 1-5</u>		Number of Containers Sample Type A W S V B O Air <input checked="" type="checkbox"/> Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> </div>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)			
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time										
1	<u>Zone D - Row 1</u>	<u>5-27-14</u>	<u>1:00 PM</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
2	<u>2</u>	<u>11</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
3	<u>3</u>			<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
4	<u>4</u>			<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
5	<u>5</u>			<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
6				<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
7				<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Custody Record MUST be Signed	Relinquished by: <u>Chet</u>		Date/Time: <u>5-27-14</u>		Received by: <u>Michael</u>				Date/Time: <u>5-27-14</u>				
	Sample Disposal:		Return to client:		Lab disposal:				Log# <u>865</u>				

ID # 1646-2290 Permit # 1646-6100

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

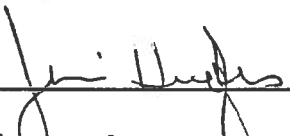
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

Dry Creek Water Reclamation Facility

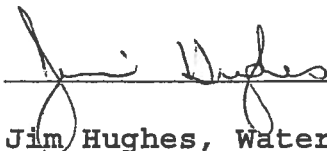
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average (Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

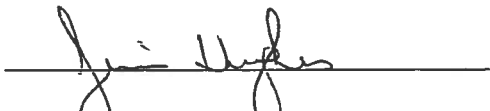
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

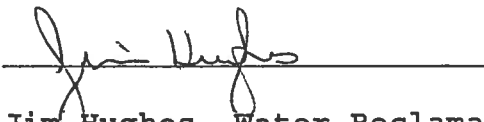
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

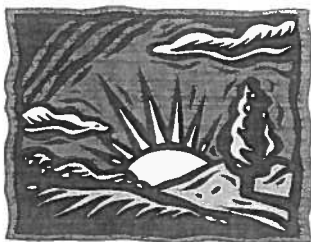
The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 05/29/14
Date Received: 05/29/14
Sample Location: Zone E
Sample Matrix: Compost

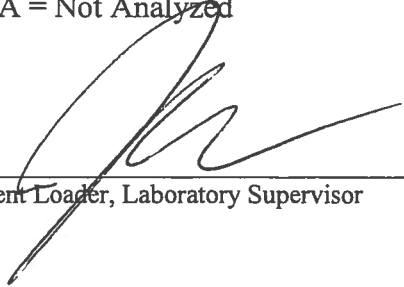
Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/03/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	63.5	35.4	NA
2	72.9	30.9	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-29-14] Time: 10:00] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 5-29-14 | Time: 10:00 | ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 5-29-14 Time: 10:00] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 2 Date: 5-29-14 Time: 10:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 2 Date: 5-29-14 Time: 10:00 ☒ AM ☒ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber] Date/Time: 5-29-14/10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 8/5/14] Time: 1030] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>U.S. Environmental Protection Agency</u>			Contact Name: <u>John P. ...</u>			Sampler's Name (if other than Contact): _____							
Report Required For: <u>Zone E Row 5-1+2</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time									
1 <u>Zone E Row 1</u>			<u>5/29</u>	<u>11:00</u>	<u>1</u>						<u>REF</u>	<u>G</u>	
2 <u>1. 1. 1. 2</u>			<u>6/1</u>	<u>1</u>	<u>1</u>						<u>1</u>	<u>1</u>	
3													
4													
5													
6													
7													
Custody Record MUST be Signed	Relinquished by: <u>[Signature]</u>		Date/Time: <u>5/29/14</u>		Received by: <u>[Signature]</u>				Date/Time: <u>5/29/14</u>				
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>805</u>				

ID # 111-77431 Permit # 111-65000

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

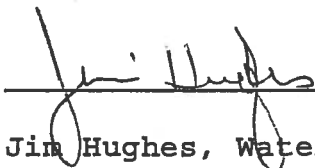
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

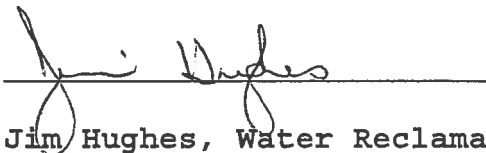
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

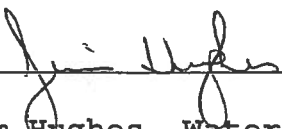
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

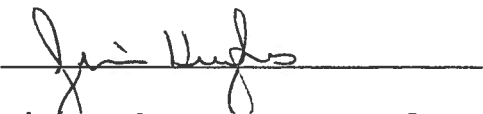
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

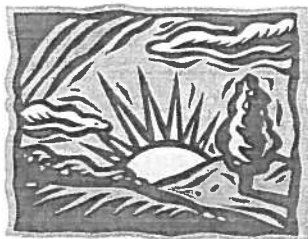
The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/26/14
Date Received: 03/26/14
Sample Location: Zone A
Sample Matrix: Compost

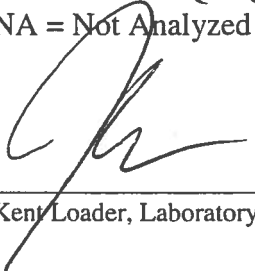
Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 03/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	74.3	24.4	NA
2	73.1	24.4	NA
3	70.3	33.6	NA
4	66.5	44.3	NA
5	69.5	31.1	NA
6	68.3	43.2	NA
7	64.9	34.9	NA
8	64.5	46.2	NA
9	65.9	49.1	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

5-23-14
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-14] Time: 10:00] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-26-14] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-26-11 Time: 10:00 ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Benbow Date/Time: 3-26-14/10:00AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best of my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Loder
This Certification is signed by: [Signature]

Date: 8/5/14] Time: 10:30] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Rowland</u>			Sampler's Name (if other than Contact): _____												
Report Required For: <u>Biosolids</u> <u>TS + VS</u> <u>Zone A Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time														
1	<u>Zone A Row 1</u>		<u>3-26</u> <u>14</u>	<u>9:00</u> <u>AM</u>	<u>1</u>	<u>TS</u>	<u>VS</u>											
2	<u>2</u>																	
3	<u>3</u>																	
4	<u>4</u>																	
5	<u>5</u>																	
6	<u>6</u>																	
7	<u>7</u>																	
Custody Record MUST be Signed			Relinquished by: <u>Chet Rowland</u>		Date/Time: <u>3-26-14</u> <u>10:00 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>3-26-14</u> <u>10:00 AM</u>					
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____										Log# <u>731</u>					

ID # WV-22934 Permit # 1-146-00002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Don Creek Water</u>		Contact Name: <u>Chet Roubell</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>Browns</u> <u>Zone A Rows 8-9</u> <u>TS+US</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time													
1 Zone A Row 8		3-26-14	9:20 AM	1 pH	↓	↓										
2 ↓ ↓ ↓			↓	↓	↓											
3																
4																
5																
6																
7																
Custody Record MUST be Signed		Relinquished by: <u>Chet Roubell</u>		Date/Time: <u>3-26-14</u> <u>10:00 AM</u>		Received by: <u>VS Roubell</u>						Date/Time: <u>3/26/14</u> <u>10:00 AM</u>				
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____						Log# <u>722</u>				

ID # 11156-2734 Permit # 11156-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

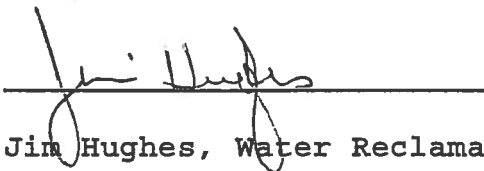
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

A handwritten signature in dark ink, appearing to read "Jim Hughes", is written over a horizontal line.

Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

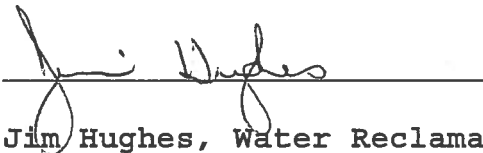
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

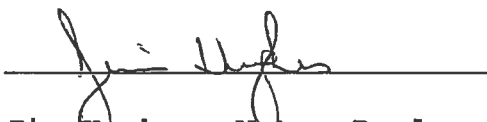
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

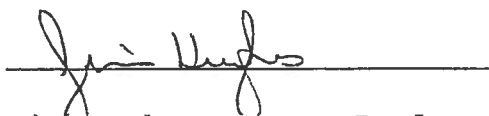
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/26/14
Date Received: 03/26/14
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 03/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	66.5	37.6	NA
2	72.2	32.2	NA
3	65.7	34.5	NA
4	71.6	40.8	NA
5	66.7	43.0	NA
6	57.9	46.3	NA
7	69.0	42.9	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

5.23.14
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-11 **Time:** 10:00 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-26-14] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosids
Location: Dry Creek WRF
Address: 8911 Campstod Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Benkitt [Date/Time: 3-26-14/10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstod Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Ledy
This Certification is signed by: [Signature]

Date: 8/5/14] Time: 10:30] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>		Contact Name: <u>Chet Hanks</u>		Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone C Rows 1-7</u> <u>TS VS</u>				Number of Containers Sample Type A W S V B O <input type="checkbox"/> Air <input type="checkbox"/> Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time											
1	<u>Zone C Row 1</u>	<u>3/14</u>	<u>1:30 PM</u>	<u>TS VS</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	<u>2</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	<u>3</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	<u>4</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	<u>5</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	<u>6</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	<u>7</u>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custody Record MUST be Signed	Relinquished by: <u>Chet Hanks</u>		Date/Time: <u>3/14/11</u> <u>10:05 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>3/14/11</u> <u>10:05 AM</u>			
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____						Log# <u>733</u>			

ID # WY 279311 Permit # WY 65002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

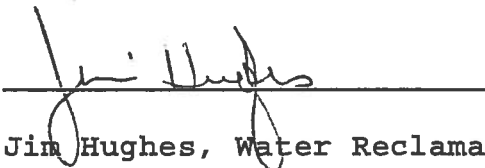
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

A handwritten signature in dark ink, appearing to read "Jim Hughes", is written over a horizontal line.

Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

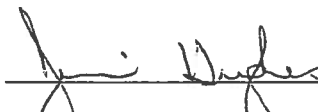
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

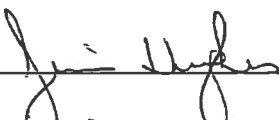
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

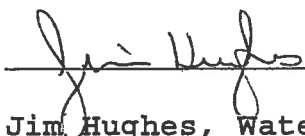
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/26/14
Date Received: 03/26/14
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 03/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	66.5	37.6	NA
2	72.2	32.2	NA
3	65.7	34.5	NA
4	71.6	40.8	NA
5	66.7	43.0	NA
6	57.9	46.3	NA
7	69.0	42.9	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

Date: 5.23.14

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-14 **Time:** 10:00 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-26-14] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 3-26-14 Time: 10:03 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: D Rows: 1 - 5 Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8111 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Bubel | Date/Time: 3-26-14/10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8111 Camp Stool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 8-5-14 | Time: 10:30 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. V. Creek WRF</u>			Contact Name: <u>Chet Barkley</u>			Sampler's Name (if other than Contact): _____													
Report Required For: <u>Zone D Rows 1-5</u> <u>TS & VS</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <table border="1" style="width: 100%; height: 100px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>												How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time															
1	<u>Zone D Row 1</u>		<u>3-26-11</u>	<u>9:40</u>															
2	<u>2</u>		<u>✓</u>	<u>✓</u>															
3	<u>3</u>		<u>✓</u>	<u>✓</u>															
4	<u>4</u>		<u>✓</u>	<u>✓</u>															
5	<u>5</u>		<u>✓</u>	<u>✓</u>															
6																			
7																			
Custody Record MUST be Signed			Relinquished by: <u>Chet Barkley</u>		Date/Time: <u>3-26-11</u> <u>10:00 AM</u>		Received by: <u>VS Barkley</u>			Date/Time: <u>3-26-11</u> <u>11 PM</u>									
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>794</u>										

ID # 114/L-22934 Permit # WV C-1-1002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

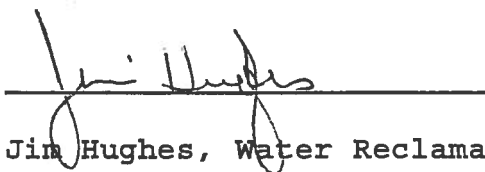
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

Dry Creek Water Reclamation Facility

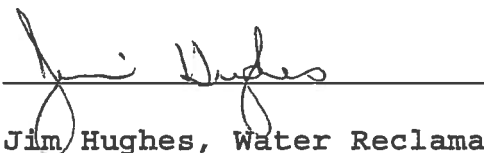
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

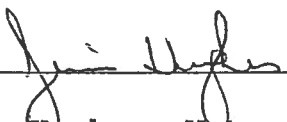
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

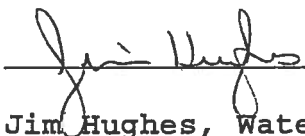
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 03/26/14
Date Received: 03/26/14
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 03/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	63.5	35.1	NA
2	67.0	40.4	NA
3	69.8	31.9	NA
4	70.0	37.1	NA
5	63.7	36.1	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

5-23-14
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-14] Time: 10:00] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 3-26-14] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 5 Date: 3-26-14 Time: 10:00 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

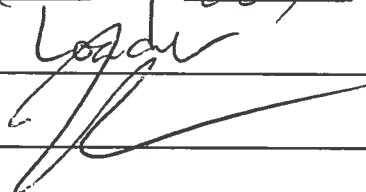
Zone: E Rows: 1-5 Date: 3-26-14 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Bouda Date/Time: 3-26-14/10:00am

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Logan
This Certification is signed by: 

Date: 8/5/14] Time: 10:30 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Pat Menden</u>				Sampler's Name (if other than Contact): _____													
Report Required For: <u>Biosolids</u> <u>Zone E Rawsl-5</u> <u>TG & VS</u>				ANALYSIS REQUESTED <table border="1" style="width: 100%; text-align: center;"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>														How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX															
1	<u>2010-12-14</u>			<u>12/14</u>	<u>9:00 AM</u>	<u>1</u>	<u>TG</u>	<u>VS</u>													
2																					
3																					
4																					
5																					
6																					
7																					
Custody Record MUST be Signed		Relinquished by: <u>Pat Menden</u>				Date/Time: <u>12-14-10</u> <u>10:00 AM</u>		Received by: <u>VS Menden</u>				Date/Time: <u>12-14-10</u> <u>10:00 AM</u>									
		Sample Disposal: _____				Return to client: _____				Lab disposal: _____											
										Log# <u>735</u>											

ID # WVCL-22431 Permit # WVCL-22431

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

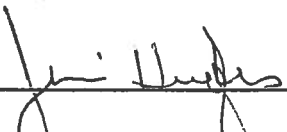
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

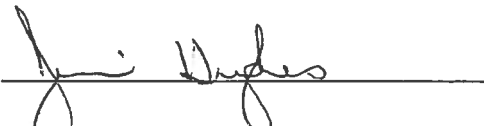
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

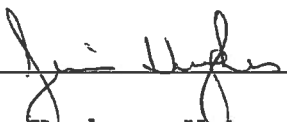
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

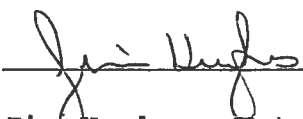
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

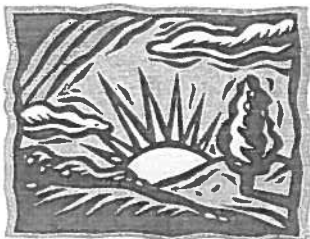
The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/21/14
Date Received: 01/21/14
Sample Location: Zone A
Sample Matrix: Compost

Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 01/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	72.1	26.9	NA
2	73.9	34.2	NA
3	68.1	30.9	NA
4	61.8	41.3	NA
5	66.9	23.8	NA
6	66.5	38.8	NA
7	77.3	42.1	NA
8	68.6	46.9	NA
9	79.9	41.5	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

3-12-14

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-21-14 **Time:** 10:30 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-21-14] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-21-11 Time: 10:30 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 1-21-11 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A1 Rows: 1 - 9 Date: 1-21-14 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Street Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chit Bader [Date/Time: 4-21-14/10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Street Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Linder
This Certification is signed by: [Signature]

Date: 4-10-14] Time: 8] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dave Smith</u>		Contact Name: <u>John Smith</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>Zone A 1-7</u>				Number of Containers Sample Type A W S V B O <input type="checkbox"/> Air <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time													
1	<u>Zone A 1</u>	<u>1-1-14</u>	<u>1:15 PM</u>													
2																
3																
4																
5																
6																
7																
Custody Record MUST be Signed		Relinquished by: <u>[Signature]</u>		Date/Time: <u>1-21-14</u>		Received by: <u>[Signature]</u>						Date/Time: _____				
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____						Log# <u>775</u>				

ID # WYGL-22930

Permit # WYGL-650002

Copies to: **White** - Book in Laboratory **Yellow** - Laboratory Hard Copy **Pink** - Client

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Deer Creek WRF</u>				Contact Name: <u>Pat L. Allen</u>				Sampler's Name (if other than Contact): _____						
Report Required For: <u>Potential Zone A and S-1</u>				Number of Containers Sample Type A W S V B O <u>Air</u> <u>Water</u> <u>Soils/Solids</u> <u>Vegetation</u> <u>Bioassay</u> <u>Other</u> <u>MATRIX</u>	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time											
1 <u>Zone A Runway</u>		<u>1-21-14</u>	<u>1:00 PM</u>	<u>15/15</u>								<u>WA</u>	<u>G</u>	
2 <u>↓ ↓ ↓ ↓</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>								<u>↓</u>	<u>↓</u>	
3														
4														
5														
6														
7														
Custody Record MUST be Signed	Relinquished by: <u>Pat L. Allen</u>			Date/Time: <u>1-21-14</u> <u>1:00 PM</u>		Received by: <u>Pat L. Allen</u>					Date/Time: <u>1:00 PM</u>			
	Sample Disposal: _____			Return to client: _____			Lab disposal: _____					Log# <u>775</u>		

ID # 11-11-11-27134 Permit # 11-11-11-27134

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

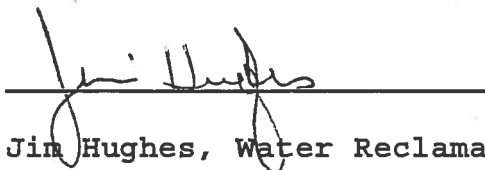
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

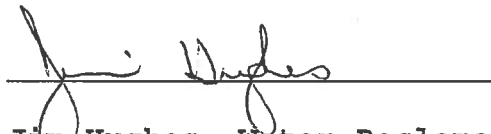
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

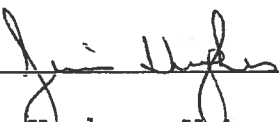
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

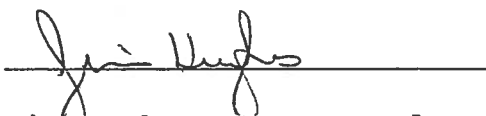
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/21/14
Date Received: 01/21/14
Sample Location: Zone C
Sample Matrix: Compost

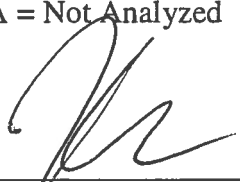
Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 01/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	77.5	36.6	NA
2	69.4	32.2	NA
3	75.7	32.5	NA
4	66.7	37.5	NA
5	68.7	44.0	NA
6	68.3	44.5	NA
7	60.1	42.3	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

3.12.14
Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-21-14 **Time:** 10:30 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-21-11] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-21-14 Time: 10:30 ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: ____ Rows: ____ - ____ Date: _____ Time: _____ ☐ AM ☐ PM

Analytical Sample Containers

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 1-21-14 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids

Location: Dry Creek WRF

Address: 8911 Camp Stool Rd

City: Cheyenne] State: WY] Zip Code: 82007

Samples Collected by: Chet Babul] [Date/Time: ~~3-1-14~~ 1-21-14 10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF

Address: 8911 Camp Stool Rd

City: Cheyenne] State: WY] Zip Code: 82007

Name of Analyst: Kent Lander

This Certification is signed by: [Signature]

Date: 4-10-14] Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. V. Cook WRF</u>		Contact Name: <u>John Smith</u>		Sampler's Name (if other than Contact): _____										
Report Required For: <u>Zone C River 1-7</u>				Number of Containers Sample Type AWS V B O <input type="checkbox"/> Air <input type="checkbox"/> Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time									
1	<u>Zone C River 1-7</u>			<u>1-21-14</u>	<u>9:00 AM</u>									
2														
3														
4														
5														
6														
7														
Custody Record MUST be Signed				Relinquished by: <u>[Signature]</u>		Date/Time: <u>1-21-14</u> <u>3:30 AM</u>		Received by: <u>[Signature]</u>				Date/Time: _____		
				Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>777</u>		

ID # 1-21-14

Permit # WY-G-65-0002

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

Attachment: #4.

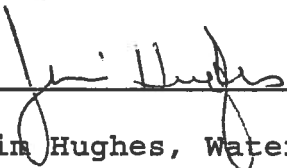
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

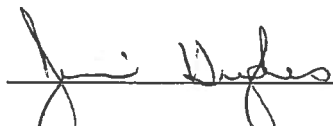
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

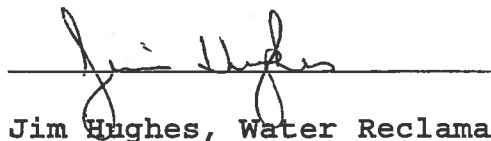
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

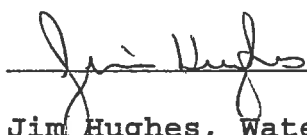
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/21/14
Date Received: 01/21/14
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 01/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	77.3	39.0	NA
2	60.3	44.3	NA
3	69.6	42.2	NA
4	66.3	44.4	NA
5	64.1	38.2	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

3.12.14

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-21-14] **Time:** 10:30] ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-21-14] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-21-11 Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 1-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: D Rows: 1 - 5 Date: 1-21-14 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids.
Location: Dry Creek WRF.
Address: 8911 Camp Stair Rd.
City: Cheyenne] State: WY] Zip Code: 82007.
Samples Collected by: Chet Buhl] Date/Time: 1-21-14/10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best of my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF.
Address: 8911 Camp Stair Rd.
City: Cheyenne] State: WY] Zip Code: 82007.
Name of Analyst: Kent Loefer.
This Certification is signed by: [Signature].

Date: 1-10-14] Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>W. J. KURT</u>			Contact Name: <u>Patricia Dell</u>			Sampler's Name (if other than Contact): _____								
Report Required For: <u>2005 D Row 1-5</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time									
1	<u>2005 D Row 1</u>			<u>1-21-14</u>	<u>1:00</u>	<u>100%</u>						<u>MB</u>	<u>G</u>	
2	<u>2</u>													
3	<u>3</u>													
4	<u>4</u>													
5	<u>5</u>													
6														
7														
Custody Record MUST be Signed				Relinquished by: <u>Patricia Dell</u>		Date/Time: <u>1-21-14</u> <u>1:30 PM</u>		Received by: <u>Patricia Dell</u>				Date/Time: <u>1-21-14</u> <u>1:30 PM</u>		
				Sample Disposal: _____ Return to client: _____ Lab disposal: _____										Log# <u>770</u>

ID # W-22-2173 Permit # 1-16-14

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

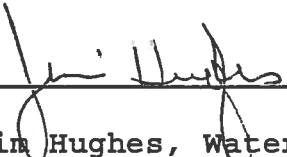
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

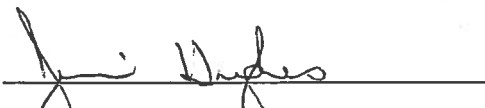
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out})))$ (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

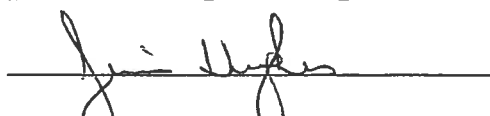
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

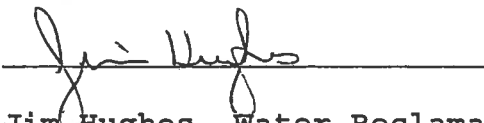
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 01/21/14
Date Received: 01/21/14
Sample Location: Zone E
Sample Matrix: Compost

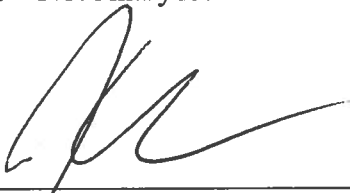
Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 01/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	77.6	39.4	NA
2	73.1	33.9	NA
3	68.1	35.0	NA
4	65.1	38.9	NA
5	65.1	36.7	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

3.12.14

Date:

Dry Creek WRF Laboratory
For: TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-21-14 **Time:** 10:30 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 1-21-14] Time: 10:30] ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 1-21-14 Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 5 Date: 1-21-14 Time: 10:30 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1-5 Date: 1-21-11 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids.
Location: Dry Creek WRF.
Address: 8911 Camp Stool Rd.
City: Cheyenne] State: WY] Zip Code: 82007.
Samples Collected by: Chet Babul [Date/Time: 1-21-14 / 10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF.
Address: 8911 Camp Stool Rd.
City: Cheyenne] State: WY] Zip Code: 82007.
Name of Analyst: Ken Good.
This Certification is signed by: [Signature].

Date: 4-10-14] Time: 0800] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page _____ of _____

Client's Name: _____				Contact Name: _____				Sampler's Name (if other than Contact): _____				
Report Required For: _____				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> HNO₃ <input type="checkbox"/> H₂SO₄ <input type="checkbox"/> 4°C <input type="checkbox"/> HCL <input type="checkbox"/> None </div> <div> <input type="checkbox"/> Grab or <input type="checkbox"/> Composite </div> </div>				How Preserved	Sample Type	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time									
1												
2												
3												
4												
5												
6												
7												
Custody Record MUST be Signed		Relinquished by: _____		Date/Time: _____		Received by: _____				Date/Time: _____		
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# 272		

ID # _____

Permit # _____

Attachment: #4.

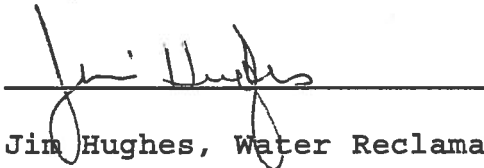
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

A handwritten signature in black ink, appearing to read "Jim Hughes", is written over a horizontal line.

Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

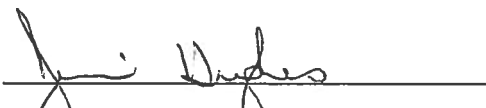
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

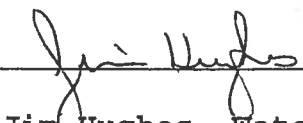
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

ATTACHMENT: 11

DRY CREEK WRF

DRY SLUDGE ROWS

TEMPERATURE

2014

2014 Zone Temperature					
Date:1/27/2014					
Time:1:00 pm			Time:1:20 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	40	4.4	1	36	2.2
2	38	3.3	2	34	1.1
3	36	2.2	3	34	1.1
4	34	1.1	4	34	1.1
5	36	2.2	5	38	3.3
6	34	1.1	6	40	4.4
7	34	1.1	7	36	2.2
8	36	2.2			
9	34	1.1			

2014 Zone Temperature					
Date:1/27/2014					
Time:1:45 pm			Time:2:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	34	1.1	1	38	3.3
2	34	1.1	2	34	1.1
3	36	2.2	3	36	2.2
4	38	3.3	4	34	1.1
5	36	2.2	5	34	1.1

2014 Zone Temperature					
Date:2/14/2014					
Time:1:00 pm			Time:1:20 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	42	5.6	1	46	7.8
2	44	6.7	2	44	6.7
3	40	4.4	3	44	6.7
4	38	3.3	4	42	5.6
5	42	5.6	5	40	4.4
6	46	7.8	6	44	6.7
7	44	6.7	7	42	5.6
8	40	4.4			
9	46	7.8			

2014 Zone Temperature					
Date:2/14/2014					
Time:1:45 pm			Time:2:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	40	4.4	1	44	6.7
2	44	6.7	2	46	7.8
3	46	7.8	3	42	5.6
4	42	5.6	4	44	6.7
5	44	6.7	5	46	7.8

2014 Zone Temperature					
Date:7/24/2014					
Time:1:00 pm			Time:1:20 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	86	30	1	90	32.2
2	82	27.8	2	92	33.3
3	84	28.9	3	86	30
4	90	32.2	4	88	31.1
5	92	33.3	5	90	32.2
6	88	31.1	6	88	31.1
7	84	28.9	7	90	32.2
8	92	33.3			
9	86	30			

2014 Zone Temperature					
Date:7/24/2014					
Time:1:45 pm			Time:2:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	88	31.1	1	86	30
2	90	32.2	2	90	32.2
3	86	30			
4	84	28.9			
5	90	32.2			

2014 Zone Temperature					
Date:8/26/2014					
Time:2:40 pm			Time:2:50 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	76	24.4	1	82	27.8
2	74	23.3	2	78	25.6
3	72	22.2	3	76	24.4
4	72	22.2	4	76	24.4
5	74	23.3	5	70	21.1
6	72	22.2	6	76	24.4
7	82	27.8	7	74	23.3
8	80	26.7			
9	84	28.9			

2014 Zone Temperature					
Date:8/26/2014					
Time:3:00 pm			Time:3:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Row	Fahrenheit	Celsius
1	74	23.3	1	72	22.2
2	76	24.4			
3	78	25.6			
4	78	25.6			
5	74	23.3			

2014 Zone Temperature					
Date:9/22/2014					
Time:4:00 pm			Time:4:10 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	70	21.1	1	70	21.1
2	68	20	2	70	21.1
3	70	21.1	3	68	20
4	68	20	4	68	20
5	66	18.9	5	70	21.1
6	68	20	6	72	22.2
7	70	21.1	7	68	20
8	70	21.1			
9	72	22.2			

2014 Zone Temperature					
Date:9/22/2014					
Time:4:15 pm			Time:4:15 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Row	Fahrenheit	Celsius
1	72	22.2	1	74	23.3
2	72	22.2			
3	72	22.2			
4	72	22.2			
5	74	23.3			

2014 Zone Temperature					
Date:10/20/2014					
Time:2:00 pm			Time:2:15 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	50	10	1	54	12.2
2	52	11.1	2	54	12.2
3	48	8.9	3	52	11.1
4	50	10	4	50	10
5	46	7.8	5	52	11.1
6	52	11.1	6	50	10
7	52	11.1	7	54	12.2
8	56	13.3			
9	54	12.2			

2014 Zone Temperature					
Date:10/20/2014					
Time:2:25 pm					
Zone D Rows	Fahrenheit	Celsius			
1	56	13.3			
2	54	12.2			
3	50	10			
4	52	11.1			
5	54	12.2			

2014 Zone Temperature					
Date:11/24/2014					
Time:1:00 pm			Time:1:15 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	20	-6.7	1	24	-4.4
2	22	-5.6	2	26	-3.3
3	24	-4.4	3	30	-1.1
4	30	-1.1	4	30	-1.1
5	28	-2.2	5	24	-4.4
6	32	0	6	26	-3.3
7	28	-2.2	7	26	-3.3
8	26	-3.3			
9	26	-3.3			

2014 Zone Temperature					
Date:11/24/2014					
Time:1:30 pm					
Zone D Rows	Fahrenheit	Celsius			
1	30	-1.1			
2	30	-1.1			
3	26	-3.3			
4	28	-3.3			

2014 Zone Temperature					
Date:12/31/2014					
Time:10:30 am			Time:10:45 am		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	20	-6.7	1	24	-4.4
2	22	-5.6	2	26	-3.3
3	24	-4.4	3	30	-1.1
4	30	-1.1	4	30	-1.1
5	28	-2.2	5	24	-4.4
6	32	0	6	26	-3.3
7	28	-2.2	7	26	-3.3
8	26	-3.3			
9	26	-3.3			

2014 Zone Temperature					
Date:12/31/2014					
Time:11:30 am					
Zone D Rows	Fahrenheit	Celsius			
1	30	-1.1			
2	20	-6.7			
3	26	-3.3			
4	28	-2.2			

Attachment: #4.

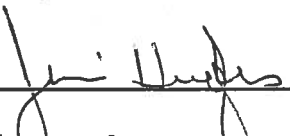
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

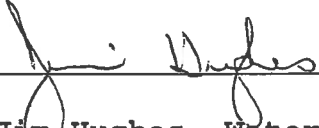
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average (Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

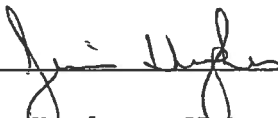
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

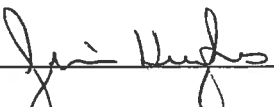
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

ATTACHMENT: 13

DRY CREEK WRF

TOTAL SOLIDS %

VOLATILE SOLIDS %

FECAL MPN/gm

(6 TIMES A YEAR)

2014



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/14
Date Received: 12/09/14
Sample Location: Zone A
Sample Matrix: Compost

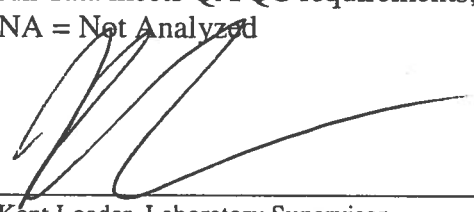
Sampled By: CB
Date Reported: 12/16/14
Date Fecal Analyzed: 12/09/14
Date Solids Analyzed: 12/10/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	75.9	25.1	<428
2	75.3	23.2	<431
3	68.0	26.0	477
4	56.4	36.7	<576
5	66.4	28.5	<489
6	70.9	34.7	<459
7	69.8	36.1	<466
8	71.5	37.9	<454
9	70.1	40.6	<463

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

12-16-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-14] Time: 10:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 12-9-14] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 12-9-14 Time: 10:30⁵ ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 12-9-11 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 12-9-14 Time: 10:35 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barker] Date/Time: 12-17-14/10:35 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dan F. P. K. W. R. F.</u>			Contact Name: <u>Robert P. Bell</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biosolids</u> <u>Zone A Rows 1-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time											
1	<u>Zone A Row 1</u>			<u>12-7</u>	<u>10:00 AM</u>											
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6	<u>6</u>															
7	<u>7</u>															
Custody Record MUST be Signed				Relinquished by: <u>[Signature]</u>		Date/Time: <u>12-7-06</u> <u>10:30 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>12/7/06</u>		
				Sample Disposal:		Return to client:		Lab disposal:						Log# <u>005</u>		

ID # 1-1-1 22/24

Permit # 1114 G-6042

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Dry Creek WRF</u>				Contact Name: <u>Pat Powell</u>				Sampler's Name (if other than Contact): _____				
Report Required For: <u>Biosolids</u> <u>2004 Rows 8-9</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Fecal Coliform</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VS</div> </div>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time							
1 <u>2004 Rows 8</u>				<u>12-1</u>	<u>10:00 AM</u>	<u>12/1/04</u>						
2 <u>↓ ↓ ↓ 9</u>				<u>↓</u>	<u>↓</u>	<u>↓</u>						
3												
4												
5												
6												
7												
Custody Record MUST be Signed		Relinquished by: <u>Pat Powell</u>		Date/Time: <u>12-1-04</u> <u>10:30 AM</u>		Received by: <u>[Signature]</u>				Date/Time: <u>12/1/04</u> <u>10:30 AM</u>		
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>037</u>		

ID # 10132 20134 Permit # 10132-0002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

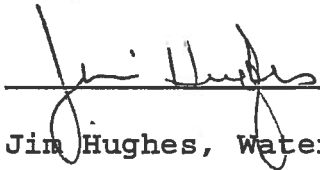
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

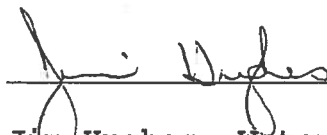
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

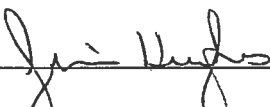
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/14
Date Received: 12/09/14
Sample Location: Zone C
Sample Matrix: Compost

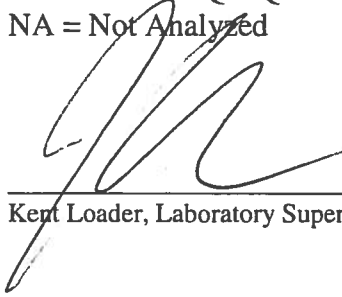
Sampled By: CB
Date Reported: 12/16/14
Date Fecal Analyzed: 12/09/14
Date Solids Analyzed: 12/10/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	71.0	29.3	<458
2	61.7	47.5	<527
3	65.4	34.6	<497
4	75.4	45.9	<431
5	60.0	41.3	<541
6	64.1	44.9	<509
7	71.6	45.2	<454

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12-16-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-14] Time: 10:35] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 12-9-14] Time: 10:35] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 12-9-14 Time: 10:35 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 12-9-14 Time: 10:35 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 12-9-14 Time: 10:35 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber [Date/Time: 12-9-14/10:35 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>DeLoach</u>			Contact Name: <u>Ken</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Drinking</u> <u>Zone C Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1	<u>Zone C Row 1</u>		<u>12-1-11</u>	<u>10:30 AM</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6	<u>6</u>															
7	<u>7</u>															
Custody Record MUST be Signed			Relinquished by: <u>Ken</u>		Date/Time: <u>12-1-11</u> <u>10:30 AM</u>		Received by: <u>Ala. (W)</u>						Date/Time: <u>12-1-11</u> <u>10:30</u>			
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____										Log# <u>838</u>			

ID # 61111 - 27134

Permit # 12-1-11

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

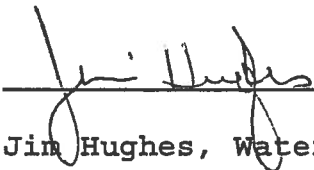
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

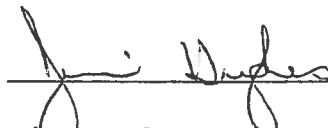
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

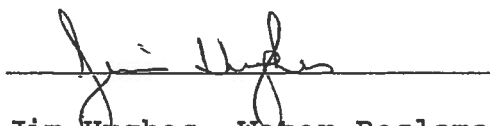
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

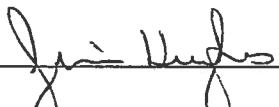
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12/09/14
Date Received: 12/09/14
Sample Location: Zone D
Sample Matrix: Compost

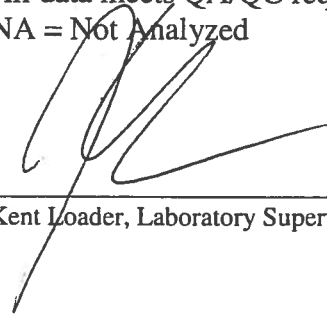
Sampled By: CB
Date Reported: 12/16/14
Date Fecal Analyzed: 12/09/14
Date Solids Analyzed: 12/10/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	73.6	44.4	490
2	64.9	40.1	<501
3	71.7	38.9	<453
4	70.5	40.7	<461

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12-16-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-14 **Time:** 10:35 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-9-14] Time: 10:35] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 12-9-14 Time: 10:35 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 0 Rows: 1 - 4 Date: 12-9-14
10:35 Time: 10:35 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 0 Rows: 1 - 4 Date: 12-9-14 Time: 10:35 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Baubert [Date/Time: 12-9-14 / 10:35 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>John Brown</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>7 100 Row 5 1-4</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>201101 Row 1</u>		<u>12-1</u>	<u>10:00 AM</u>	<u>140514</u>	<u>AW</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
2	<u>2</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
3	<u>3</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
4	<u>4</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
5												
6												
7												
Custody Record MUST be Signed			Relinquished by: <u>John Brown</u>		Date/Time: <u>12-1-14</u> <u>10:35 AM</u>		Received by: <u>Mike Ward</u>				Date/Time: <u>12-1-14</u> <u>10:35 AM</u>	
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>889</u>	

ID # 141156-22134 Permit # 141156-22134

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

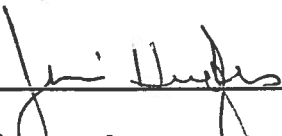
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

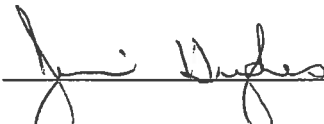
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $\frac{((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - ((\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

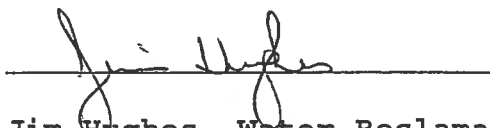
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

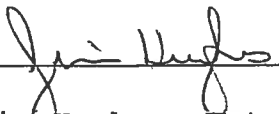
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/27/14
Date Received: 10/27/14
Sample Location: Zone A
Sample Matrix: Compost

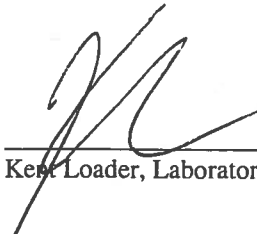
Sampled By: CB
Date Reported: 12/11/14
Date Fecal Analyzed: 10/27/14
Date Solids Analyzed: 10/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	80.8	21.5	<402
2	77.4	18.2	<419
3	73.2	26.3	<444
4	81.9	34.9	<396
5	68.2	26.0	<476
6	83.5	28.0	864
7	73.0	32.5	<445
8	76.5	37.0	<424
9	66.4	45.8	<489

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Keri Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-27-11] Time: 11:10] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-27-14] Time: 11:10] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-27-11 Time: 11:10 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barkum] Date/Time: 10-27-14 / 11:10 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>D.</u>			Contact Name: _____			Sampler's Name (if other than Contact): _____													
Report Required For: <u>10-01-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)			
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time															
1	<u>Zone A Raw</u>		<u>10-01</u>	<u>10:00</u>															
2	<u>1</u>		<u>10-01</u>	<u>10:00</u>															
3																			
4	<u>4</u>																		
5	<u>5</u>																		
6	<u>6</u>																		
7																			
Custody Record MUST be Signed			Relinquished by: _____			Date/Time: _____			Received by: _____						Date/Time: _____				
			Sample Disposal: _____			Return to client: _____			Lab disposal: _____						Log# _____				

ID # _____

Permit # _____

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>Day Creek WRF</u>			Contact Name: <u>Chet Powell</u>			Sampler's Name (if other than Contact): _____								
Report Required For: <u>Biogrowth</u> <u>Zone A Rows 8-9</u>				Number of Containers Sample Type A W S V B O Air <input type="checkbox"/> Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other <input type="checkbox"/> MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div> <u>Residual</u> <u>Alkalinity</u> <u>pH</u> <u>DO</u> </div> <div> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> </div>				How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time										
1	<u>Zone A Row 8</u> <u>↓</u> <u>↓</u>		<u>10-27-11</u> <u>10:10 AM</u>	<u>10:10 AM</u> <u>11:10 AM</u>	<u>Residual</u> <u>Alkalinity</u> <u>pH</u> <u>DO</u>									
2	<u>↓</u> <u>↓</u>		<u>10-27-11</u> <u>11:10 AM</u>	<u>11:10 AM</u>	<u>Residual</u> <u>Alkalinity</u> <u>pH</u> <u>DO</u>									
3														
4														
5														
6														
7														
Custody Record MUST be Signed			Relinquished by:		Date/Time:		Received by:				Date/Time:			
			<u>Chet Powell</u>		<u>10-27-11</u> <u>11:10 AM</u>		<u>Chet Powell</u>				<u>10/27/11</u>			
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>030</u>					

ID # 11141 22136

Permit # 11141 G-11141

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

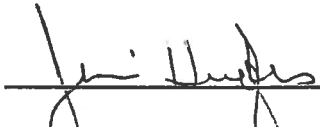
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

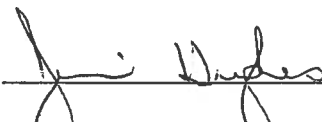
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

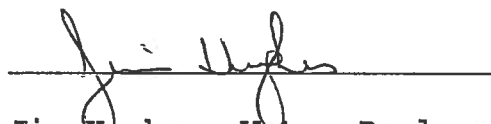
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

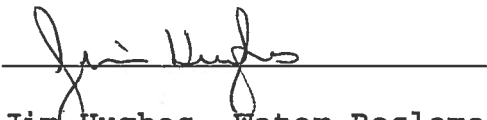
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

CHEYENNE BOPU WATER REC LABORATORY

8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/27/14
Date Received: 10/27/14
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 12/11/14
Date Fecal Analyzed: 10/27/14
Date Solids Analyzed: 10/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	78.2	20.1	<415
2	76.4	40.3	<423
3	79.1	44.8	<411
4	70.7	39.7	<460
5	69.9	42.9	<465
6	70.0	45.1	<463
7	73.3	44.9	<443

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed

Kent Loader, Laboratory Supervisor

12-11-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-27-14] Time: 11:10] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-27-14] Time: 11:10] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Beuk] Date/Time: 12-27-14/11:10 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. J. ...</u>			Contact Name: <u>...</u>			Sampler's Name (if other than Contact): _____							
Report Required For: <u>140501, 13</u> <u>Zone C Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time									
1	<u>Zone C Row 1</u>		<u>10-27-14</u>	<u>10:00 AM</u>									
2	<u>2</u>												
3	<u>3</u>												
4	<u>4</u>												
5	<u>5</u>												
6	<u>6</u>												
7	<u>7</u>												
Custody Record MUST be Signed			Relinquished by:		Date/Time:		Received by:				Date/Time:		
			<u>...</u>		<u>10-27-14 11:10 AM</u>		<u>...</u>				<u>10/27/14</u>		
Sample Disposal:			Return to client:			Lab disposal:			Log# <u>831</u>				

ID # 14451-22781 Permit # 1446-631002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

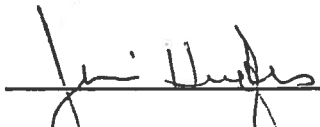
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

Dry Creek Water Reclamation Facility

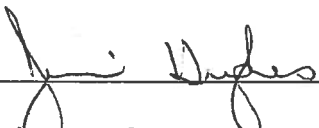
G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2

(if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

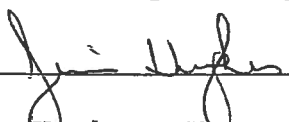
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

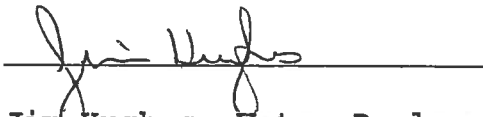
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

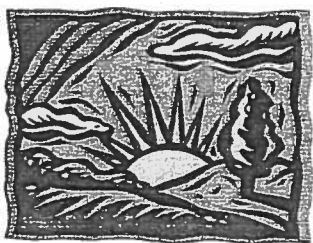
The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

CHEYENNE BOPU WATER REC LABORATORY

8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10/27/14
Date Received: 10/27/14
Sample Location: Zone D
Sample Matrix: Compost

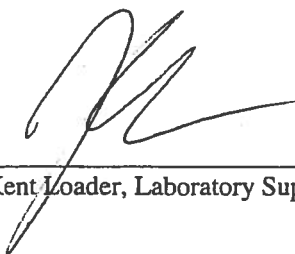
Sampled By: CB
Date Reported: 12/11/14
Date Fecal Analyzed: 10/27/14
Date Solids Analyzed: 10/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	73.7	46.7	<441
2	75.1	44.5	<432
3	74.2	38.5	<438
4	70.8	41.0	<459
5	77.9	45.2	1,412

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

12-11-14

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-27-14] **Time:** 11:10] ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 10-27-14] Time: 11:10] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 10-27-14 Time: 11:10 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 7 Rows: 1 - 5 Date: 10-27-14 Time: 11:10 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barker | Date/Time: 10-27-14 / 11:10 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 12-17-14 | Time: 11 | ☒ AM ☐ PM

Attachment: #4.

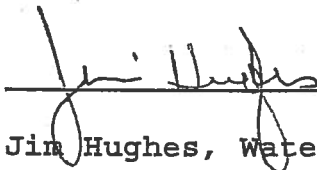
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

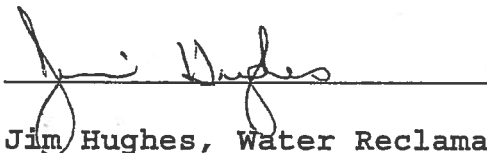
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

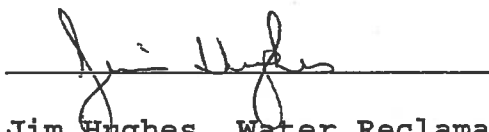
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

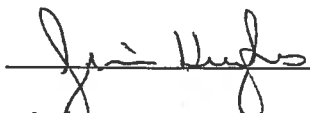
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/26/14
Date Received: 08/26/14
Sample Location: Zone A
Sample Matrix: Compost

Sampled By: CB
Date Reported: 9/30/14
Date Fecal Analyzed: 08/26/14
Date Solids Analyzed: 08/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	76.5	23.9	<424
2	71.2	28.1	<456
3	75.6	26.5	<429
4	62.9	43.1	<517
5	66.2	26.7	<491
6	60.4	32.8	<538
7	62.5	32.3	519
8	72.9	34.6	<445
9	65.7	44.6	986

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

9-30-14

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-26-14 **Time:** 10:30 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-26-14] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 8-26-14 Time: 10:30] ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 8-26-14 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 8-26-11 Time: 10:30 ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet Korb</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Locals</u> <u>Zone A Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1	<u>Zone A Row 1</u>		<u>7-26-14</u>	<u>11:30 AM</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
2	<u>2</u>											
3	<u>3</u>											
4	<u>4</u>											
5	<u>5</u>											
6	<u>6</u>											
7	<u>7</u>											
Custody Record MUST be Signed			Relinquished by: <u>Chet Korb</u>		Date/Time: <u>7-26-14</u> <u>10:30 AM</u>		Received by: <u>Mike Ward</u>				Date/Time: <u>7/26/14</u> <u>10:30</u>	
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____		Log# <u>320</u>			

ID # 1046-2274 Permit # 1046-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>D. K. KURF</u>		Contact Name: <u>Let. Bunker</u>		Sampler's Name (if other than Contact): _____													
Report Required For: <u>Biosolids</u> <u>Zone A Rows 8-9</u>				Number of Containers	Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time												
1 <u>Zone A Row 8</u>				<u>8-26</u>	<u>9:00 AM</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	
2 <u>↓ ↓ ↓ 9</u>				<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	
3																	
4																	
5																	
6																	
7																	
Custody Record MUST be Signed		Relinquished by: <u>[Signature]</u>		Date/Time: <u>8-26-14</u> <u>10:30 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>8/26/14</u> <u>10:30 AM</u>					
		Sample Disposal:		Return to client:		Lab disposal:						Log# <u>829</u>					

ID # W 462-22931 Permit # W 462-65002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber [Date/Time: 8-26-11 / 10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: KC
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11 ☒ AM ☐ PM

Attachment: #4.

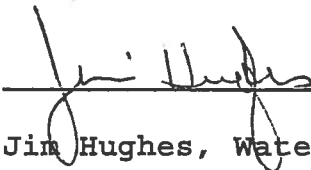
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

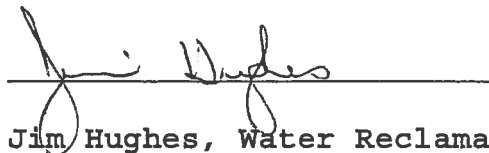
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out})) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

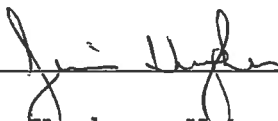
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

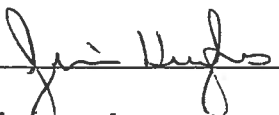
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/25/14
Date Received: 08/25/14
Sample Location: Zone C
Sample Matrix: Compost

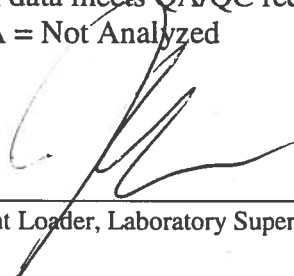
Sampled By: CB
Date Reported: 9/30/14
Date Fecal Analyzed: 08/25/14
Date Solids Analyzed: 08/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	71.8	23.5	<453
2	65.2	39.8	<498
3	65.7	36.7	<494
4	71.3	36.2	<455
5	73.7	36.2	<441
6	66.3	36.2	<490
7	69.1	35.5	469

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-25-14] Time: 9:00] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-25-14] Time: 9:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ **Date and time of samples analysis**

☐ **Name of analyst**

☐ **All analyses are reported on dry weight basis**

☐ **Dry Creek WRF Laboratory**
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ **Analytical quality assurance/quality control (QA/QC) available**

☐ **Analytical results available**

☐ **Chain of custody record**

Date: 8-25-14 Time: 9:00] ☒ **AM** ☐ **PM**

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 8-25-14 Time: 9:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: C Rows: 1 - 7 Date: 8-25-14 Time: 9:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chat Barbell | Date/Time: 8-25-14/9:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 12-17-14 | Time: 11 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: D. [unclear] Contact Name: [unclear] Sampler's Name (if other than Contact): [unclear]

Report Required For:			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
<u>Boval, B.</u> <u>Zone C Rows 1-7</u>													
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time									
1	<u>Zone C Row 1</u>		<u>8-22</u>	<u>8:00 AM</u>	<u>100%</u>	<u>Fe</u>	<u>TC</u>	<u>DO</u>			<u>MF</u>	<u>G</u>	<u>Yes</u>
2	<u>2</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>
3	<u>3</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>
4	<u>4</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>
5	<u>5</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>
6	<u>6</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>
7	<u>7</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>			<u>↓</u>	<u>↓</u>	<u>↓</u>

Custody Record MUST be Signed	Relinquished by: <u>[Signature]</u>		Date/Time: <u>8-25 9:00 AM</u>	Received by: <u>[Signature]</u>		Date/Time: <u>8-25 11:00 AM</u>
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____	
					Log#	<u>835</u>

ID # 2273 Permit # 104 G-1000

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

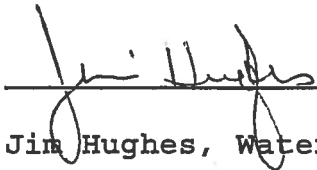
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

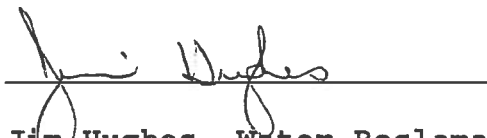
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

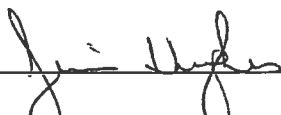
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

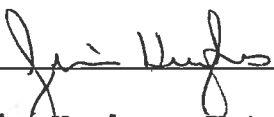
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/25/14
Date Received: 08/25/14
Sample Location: Zone D
Sample Matrix: Compost

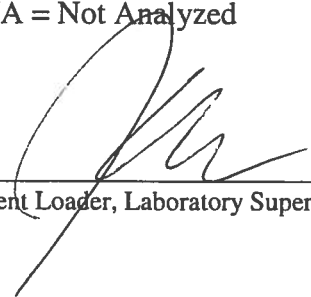
Sampled By: CB
Date Reported: 9/30/14
Date Fecal Analyzed: 08/25/14
Date Solids Analyzed: 08/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	73.6	34.6	<442
2	63.6	35.8	<511
3	61.6	37.1	<527
4	59.0	37.2	<551
5	65.6	39.1	<495

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 8-25-14] Time: 9:20] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-25-14] Time: 9:20] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 8-25-14 Time: 9:20 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1-5 Date: 8-25-14 Time: 9:20 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 8-25-14 Time: 9:20 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Babbitt [Date/Time: 8-25-14/9:20 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: [Signature]
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11 ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>City of Cheyenne</u>		Contact Name: <u>John Smith</u>		Sampler's Name (if other than Contact): _____										
Report Required For: <u>Biological</u> <u>Zone 1) Raw 1-5</u>				Number of Containers Sample Type A W S V B O <u>Air Water</u> <u>Soils/Solids</u> <u>Vegetation</u> <u>Bioassay</u> <u>Other</u> MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time											
1 <u>Zone 1 Raw 1</u>		<u>8-25</u>	<u>9:15</u>	<u>100</u>								<u>GC</u>	<u>Yes</u>	
2 <u>Zone 1 Raw 2</u>				<u>100</u>										
3 <u>Zone 1 Raw 3</u>				<u>100</u>										
4 <u>Zone 1 Raw 4</u>				<u>100</u>										
5 <u>Zone 1 Raw 5</u>				<u>100</u>										
6														
7														
Custody Record MUST be Signed	Relinquished by: <u>John Smith</u>		Date/Time: <u>8-25</u> <u>9:20</u>		Received by: _____							Date/Time: _____		
	Sample Disposal: _____		Return to client: _____		Lab disposal: _____							Log# <u>035</u>		

ID # 1046-2234 Permit # WVC 50002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

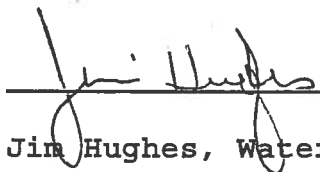
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

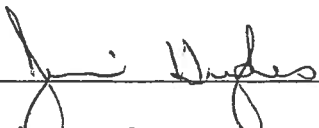
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out})))$ (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

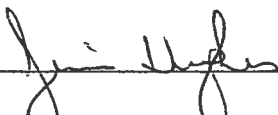
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

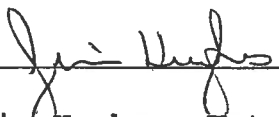
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08/26/14
Date Received: 08/26/14
Sample Location: Zone E
Sample Matrix: Compost

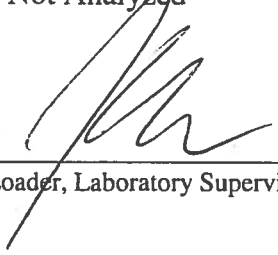
Sampled By: CB
Date Reported: 9/30/14
Date Fecal Analyzed: 08/26/14
Date Solids Analyzed: 08/28/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Soliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	69.8	36.9	<446

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

9-30-14

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/OC

Date: 8-26-14] Time: 10:30] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 8-26-14] Time: 10:30] ☒ (AM) ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory

8911 Campstool Rd.

Cheyenne, WY 82007

Ph: 307-635-3163

Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 8-26-14 Time: 10:30 ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - Date: 8-26-14 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - Date: 8-26-11 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Barber] Date/Time: 8-26-14/10:30 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best of my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: KL
This Certification is signed by: [Signature]

Date: 12-17-14] Time: 11] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Wt / Haudel</u>			Sampler's Name (if other than Contact): _____												
Report Required For: <u>Bioassay</u> <u>Zone E Row 1</u>			Number of Containers	Sample Type A W S V B O	ANALYSIS REQUESTED										How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
					Air	Water	Soils/Solids	Vegetation	Bioassay	Other MATRIX								
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time														
1	<u>Zone E Row 1</u>		<u>8-26</u> <u>11</u>	<u>9:30</u> <u>AM</u>	<u>100% H₂O</u> <u>RAW</u>	<u>Recal</u>	<u>MS</u>	<u>VB</u>							<u>100%</u>	<u>G</u>	<u>Yes</u>	
2																		
3																		
4																		
5																		
6																		
7																		
Custody Record MUST be Signed	Relinquished by: <u>Wt / Haudel</u>			Date/Time: <u>8-26</u> <u>10:30 AM</u>			Received by: <u>Mike W</u>							Date/Time: <u>8/26/11</u> <u>10:00 AM</u>				
	Sample Disposal: _____			Return to client: _____			Lab disposal: _____							Log# <u>610</u>				

ID # 111491 271311

Permit # 111491 271311

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

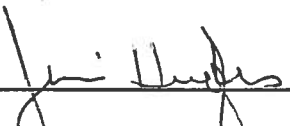
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

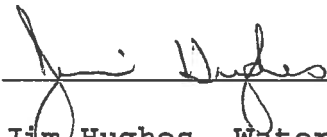
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - ((\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility


H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

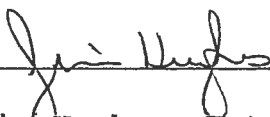
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/09/14
Date Received: 06/09/14
Sample Location: Zone A
Sample Matrix: Compost

Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/10/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	69.1	30.4	<470
2	66.4	24.0	488
3	64.9	29.0	<501
4	62.0	41.3	2151
5	71.1	27.6	<456
6	60.4	37.5	2209
7	77.9	33.4	417
8	57.7	41.2	4031
9	65.9	50.00	984

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-9-14 **Time:** 9:15 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-9-14] Time: 9:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-9-14 Time: 9:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 6-9-14 Time: 9:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

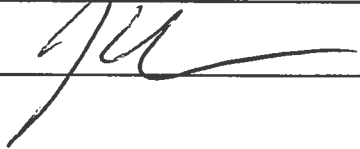
Zone: A Rows: 1 - 9 Date: 6-9-14 Time: 9:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stair Rd.
City: Cheyenne] State: WY Zip Code: 82007
Samples Collected by: Chet Babul [Date/Time: 6-9-14 / 9:15 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 8/5/14] Time: 10:30] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>City of Cheyenne</u>			Contact Name: <u>John Smith</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Zone 11 Row 1-7</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1 <u>Zone 11 Row 1</u>			<u>5-11</u>	<u>9:00</u>	<u>Water</u>								<u>MP</u>	<u>G</u>		
2																
3																
4																
5																
6																
7																
Custody Record MUST be Signed			Relinquished by: <u>John Smith</u>		Date/Time: <u>5-11-14</u>		Received by: <u>John Smith</u>					Date/Time: _____				
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____					Log# <u>817</u>				

ID # 11-11-13

Permit # 11-11-13

Copies to: **White** - Book in Laboratory **Yellow** - Laboratory Hard Copy **Pink** - Client

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>W. C. Burkhardt</u>		Contact Name: <u>Chet L. Burkhardt</u>		Sampler's Name (if other than Contact): _____														
Report Required For: <u>Boiler 1-5</u> <u>200-11 Rows 8-7</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time															
1 <u>200-11 Row 8</u>		<u>6-7-14</u>	<u>1505</u>	<u>Recal</u>	<u>TS</u>	<u>TS</u>												
2 <u>↓ ↓ ↓ 7</u>		<u>↓</u>	<u>↓</u>	<u>↓</u>														
3																		
4																		
5																		
6																		
7																		
Custody Record MUST be Signed		Relinquished by: <u>Chet L. Burkhardt</u>		Date/Time: <u>6-7-14</u>		Received by: <u>[Signature]</u>								Date/Time: <u>11:00</u>				
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____								Log# <u>808</u>				

ID # W-196-22934

Permit # W-196-22934

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

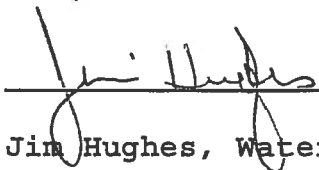
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

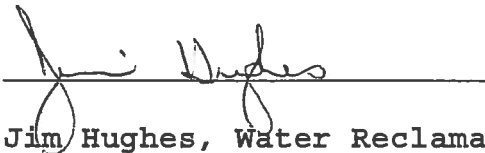
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

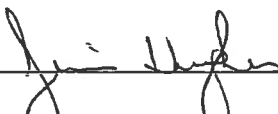
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

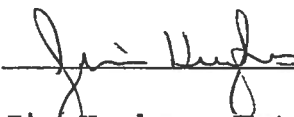
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/09/14
Date Received: 06/09/14
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/10/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	71.1	32.3	3494
2	68.8	33.0	<472
3	65.7	36.4	2822
4	62.2	38.0	<523
5	59.3	47.3	3526
6	58.5	43.4	<555
7	67.7	46.8	<480

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor


Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-9-14 **Time:** 9:40 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-9-14] Time: 9:40] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-9-14 Time: 9:40 ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 6-9-14 Time: 9:40 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record


Zone: C Rows: 1 - 7 Date: 6-9-14 Time: 9:40 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Babu [Date/Time: 6-9-14/9:40 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 8/5/14] Time: 10:30] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>City of Cheyenne</u>		Contact Name: <u>John Smith</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>Zone 6 House 1-7</u>				Number of Containers Sample Type AWS V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time											
1	<u>Zone 6 House 1</u>			<u>6-4</u>	<u>11:00</u>									<u>WIT</u>	<u>G</u>	
2	<u>2</u>															
3	<u>3</u>															
4	<u>4</u>															
5	<u>5</u>															
6	<u>6</u>															
7	<u>7</u>															
Custody Record MUST be Signed				Relinquished by: <u>John Smith</u>		Date/Time: <u>6-4-10</u>		Received by: <u>Michael</u>						Date/Time: <u>6-4-10</u>		
Sample Disposal: _____				Return to client: _____				Lab disposal: _____				Log# <u>809</u>				

ID # 123456789 Permit # 123456789

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

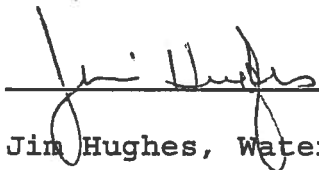
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

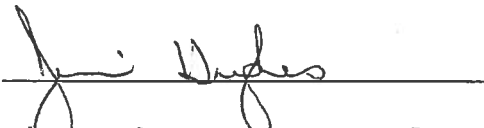
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

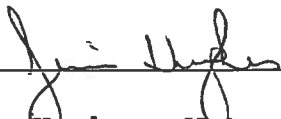
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

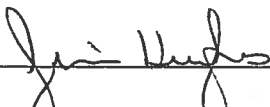
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/09/14
Date Received: 06/09/14
Sample Location: Zone D
Sample Matrix: Compost

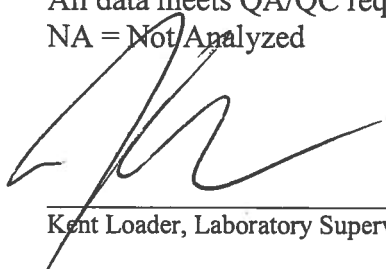
Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/10/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	61.0	45.0	<532
2	54.5	43.2	662
3	68.2	42.2	<476
4	70.6	43.0	1020
5	60.1	39.8	3473

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

6-24-14

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-9-14] Time: 9:50] ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-9-14] Time: 9:50] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-9-14 Time: 9:50 ☐ AM ☒ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: D Rows: 1 - 5 Date: 6-9-14 Time: 9:50 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: D Rows: 1 - 4 Date: 6-9-14 Time: 9:50 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Baber | Date/Time: 6-9-14/9:50 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: [Signature]

Date: 8/5/14 | Time: 10:30 ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Day Campis</u>		Contact Name: <u>John Miller</u>		Sampler's Name (if other than Contact): _____												
Report Required For: <u>11,000 l/c</u> <u>Zone D Row 3 + 5</u>				Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)		
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time											
1	<u>Zone D Row 1</u>			<u>6-1</u>	<u>9:45</u>	<u>11/10/03</u>	<u>Fecal</u>	<u>TS</u>	<u>VS</u>					<u>pH</u>	<u>G</u>	
2	<u>2</u>															
3	<u>3</u>															
4	<u>11</u>															
5																
6																
7																
Custody Record MUST be Signed		Relinquished by: <u>John Miller</u>		Date/Time: <u>6-1-04</u> <u>7:50 AM</u>		Received by: <u>John Miller</u>						Date/Time: <u>6/1/04</u>				
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____						Log# <u>810</u>				

ID # 6256-2-2144 Permit # 11072-65000

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

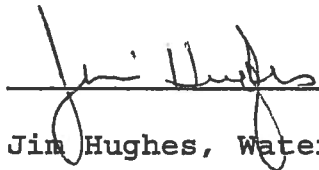
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

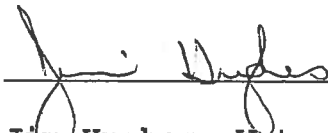
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

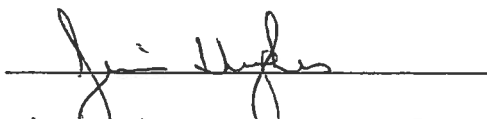
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

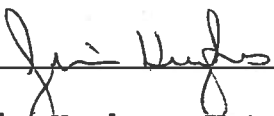
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06/09/14
Date Received: 06/09/14
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 6/24/14
Date Fecal Analyzed: NA
Date Solids Analyzed: 06/10/14
Analyst(s): mw

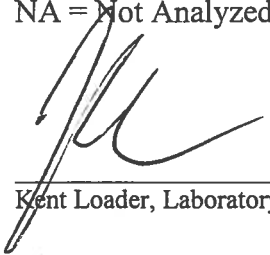
EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/

Row #	Total Solids %	Volatile Solids%	Dry Gram Sludge
1	75.6	30.8	1071
2	64.0	35.7	<508

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

6-24-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 6-9-14 | Time: 10:10 | ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 6-9-14] Time: 10:10] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 6-9-11 Time: 10:10] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 2 Date: 6-9-14 Time: 10:10 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

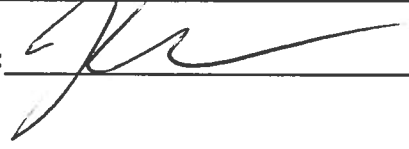
Zone: E Rows: 1 - 2 Date: 6-9-14 Time: 10:10 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chit Baird | Date/Time: 6-9-14 #10:40 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 8/5/14 | Time: 10:30 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
 PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Deer Creek WRF</u>			Contact Name: <u>Chad Pridel</u>			Sampler's Name (if other than Contact): _____						
Report Required For: <u>Biosolids</u> <u>Zone E Rows 1-2</u>			Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED					How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time								
1 <u>Zone E Row 1</u>			<u>5/11/14</u>	<u>1:00 PM</u>	<u>12</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
2 <u>Zone E Row 2</u>			<u>5/11/14</u>	<u>1:00 PM</u>	<u>12</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
3												
4												
5												
6												
7												
Custody Record MUST be Signed			Relinquished by: <u>Chad Pridel</u>		Date/Time: <u>5-11-14</u> <u>10:10 AM</u>		Received by: <u>[Signature]</u>				Date/Time: <u>[Signature]</u> <u>1:00 PM</u>	
			Sample Disposal: _____ Return to client: _____ Lab disposal: _____									

ID # WVSL-00134

Permit # 19-16-650002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

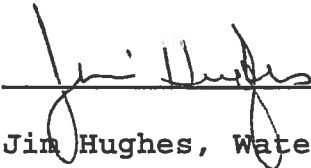
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

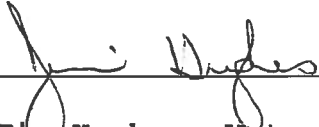
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average (Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

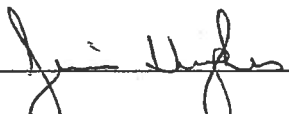
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

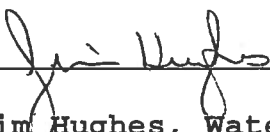
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/21/14
Date Received: 04/21/14
Sample Location: Zone A
Sample Matrix: Compost

Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: 04/21/14
Date Solids Analyzed: 04/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	62.6	29.5	<520
2	65.1	37.4	554
3	56.3	39.0	<578
4	58.0	52.4	559
5	62.1	47.1	<523
6	69.5	41.5	<467
7	75.2	53.1	6,499
8	63.5	53.2	1,023
9	57.4	55.0	<565

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

5-23-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-21-14] **Time:** 10:30] ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 4-21-14] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: A Rows: 1-9 ~~1-21~~ Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Bault | Date/Time: 8-21-14/10:30pm

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: [Signature] Kent Good
This Certification is signed by: [Signature]

Date: 8-5-14 | Time: 10:30 ☒ AM ☐ PM

Page 1 of 2Permit # 12-06-0002

Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: <u>D. J. COOK WRP</u>				Contact Name: <u>Chris [unclear]</u>				Sampler's Name (if other than Contact): _____						
Report Required For: <u>Bioassays</u> <u>Zone A Row 8-1</u>				Number of Containers Sample Type A W S V B O <u>Air</u> <u>Water</u> <u>Soils/Solids</u> <u>Vegetation</u> <u>Bioassay</u> <u>Other</u> MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time									
1 <u>Zone A Row 8</u>				<u>4-11-11</u>	<u>1:00 PM</u>	<u>11/11/11</u>						<u>↓</u>	<u>↓</u>	
2 <u>↓ ↓ ↓ 9</u>				<u>↓</u>	<u>↓</u>	<u>↓ ↓ ↓</u>						<u>↓</u>	<u>↓</u>	
3														
4														
5														
6														
7														
Custody Record MUST be Signed		Relinquished by: <u>[Signature]</u>		Date/Time: <u>4-21-11</u> <u>7:00 AM</u>		Received by: <u>[Signature]</u>						Date/Time: <u>4-21-11</u>		
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____						Log# <u>737</u>		

ID # 10091-22191 Permit # 10091-22191

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

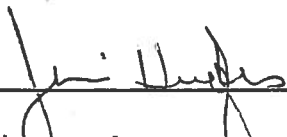
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.


Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

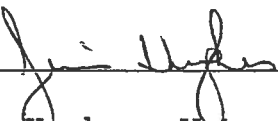
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

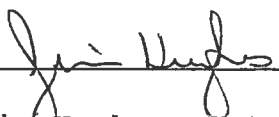
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/21/14
Date Received: 04/21/14
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: 04/21/14
Date Solids Analyzed: 04/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	58.3	47.9	<556
2	62.2	60.4	<523
3	68.6	38.1	<473
4	64.5	42.2	2,207
5	62.2	40.7	522
6	59.9	36.7	1,084
7	60.1	33.3	<540

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

5-23-14

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-21-14 **Time:** 10:30 ☒ AM ☐ PM

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ **Dates and time of samples collected**
- ☐ **Sampling location documented**
- ☐ **Sampling types appropriate**
- ☐ **Sampling volumes recorded**
- ☐ **Name of person sampling**
- ☐ **Types of sampling containers**
- ☐ **Methods of preservation**
- ☐ **Sampling quality assurance/ quality control QA/QC available**
- ☐ **Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)**
- ☐ **Certification statement signed with each laboratory analytical report:**
 - 1. Pathogen reduction**
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.**
 - 3. Management Practices**
 - 4. Site restrictions**
- ☐ **Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.**
- ☐ **Chain of custody recorded**

Date: 4-21-14] Time: 10:30] ☒ **AM** ☐ **PM**

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

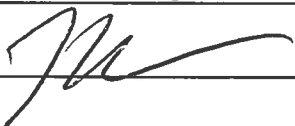
Zone: C Rows: 1 - 7 Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstool Rd.
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Baubert [Date/Time: 4-21-14/10:30 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstool Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Loader
This Certification is signed by: 

Date: 8-5-14 | Time: 10:30 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>May Creek WRF</u>			Contact Name: <u>Chet Campbell</u>			Sampler's Name (if other than Contact): _____							
Report Required For: <u>Bioassay</u> <u>Zone C Row 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED						How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time									
1	<u>Zone C Row 1</u>		<u>4-21-14</u>	<u>9:30 AM</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>
2	<u>2</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
3	<u>3</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
4	<u>4</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
5	<u>5</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
6	<u>6</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
7	<u>7</u>		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Custody Record MUST be Signed			Relinquished by: <u>Chet Campbell</u>		Date/Time: <u>4-21-14</u>		Received by: <u>Al Kelly</u>				Date/Time: <u>4/21/14</u>		
			Sample Disposal: _____		Return to client: _____		Lab disposal: _____				Log# <u>723</u>		

ID # WV-1-22-14 Permit # WV-6-65012

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

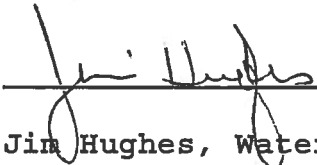
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

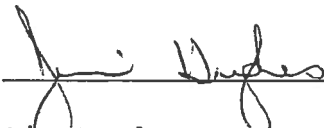
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

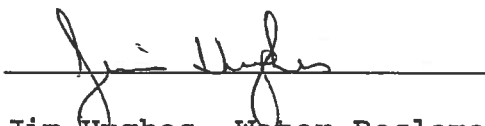
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

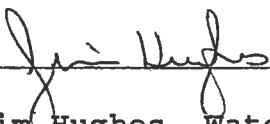
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/21/14
Date Received: 04/21/14
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 5/23/14
Date Fecal Analyzed: 4/21/14
Date Solids Analyzed: 04/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	76.2	36.9	<426
2	61.3	43.9	<530
3	75.8	46.0	<428
4	59.6	38.4	<545
5	71.4	37.0	934

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-21-14 **Time:** 10:30 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 4-21-14] Time: 10:30] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

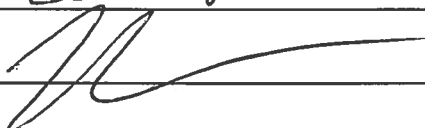
Zone: D Rows: 1 - 5 Date: 4-21-14 Time: 10:30 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstou Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Barkall [Date/Time: 4-21-14 / 10:30 AM]

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstou Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kevin Loader
This Certification is signed by: 

Date: 8-5-14 | Time: 1030 | ☒ AM ☐ PM

Page 1 of 1

ID # 100-21161

Permit # 12 YC-35703

Pink - Client

Attachment: #4.

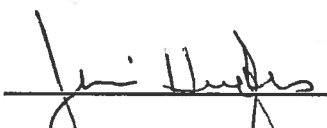
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

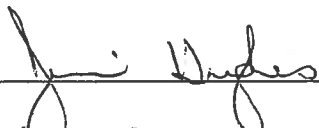
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average (Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

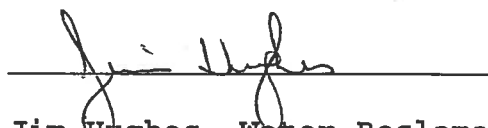
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manager

Attachment: #7.

Dry Creek Water Reclamation Facility

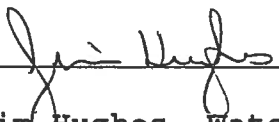
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04/22/14
Date Received: 04/22/14
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 4/23/14
Date Fecal Analyzed: 04/22/14
Date Solids Analyzed: 04/23/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	75.5	31.7	859
2	73.6	26.9	441
3	72.6	23.9	496
4	67.0	38.0	<485
5	71.3	41.3	<455

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor



Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-22-14 **Time:** 8:45 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 4-22-14] Time: 8:45] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 4-22-14 Time: 8:45] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 5 Date: 4-22-14 Time: 8:45 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

Zone: E Rows: 1 - 5 Date: 7-22-14 Time: 8:45 AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstair Rd
City: Cheyenne | State: WY | Zip Code: 82007
Samples Collected by: Chet Benner | Date/Time: 4-22-14/8:45 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best of my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstair Rd
City: Cheyenne | State: WY | Zip Code: 82007
Name of Analyst: Kent Jay
This Certification is signed by: [Signature]

Date: 8-7-14 | Time: 10:30 | ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. L. C. & L. R.</u>			Contact Name: <u>J. A. ...</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>Water</u>				Number of Containers Sample Type A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1 <u>Zone F</u>			<u>5-12</u>	<u>5:00</u>	<u>100</u>											
2 <u>12</u>																
3 <u>12</u>																
4 <u>4</u>																
5 <u>5</u>																
6																
7																
Custody Record MUST be Signed		Relinquished by: <u>[Signature]</u>			Date/Time: <u>5-12-04</u>		Received by: <u>[Signature]</u>						Date/Time: _____			
		Sample Disposal: _____			Return to client: _____			Lab disposal: _____						Log# <u>801</u>		

ID # Permit #

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

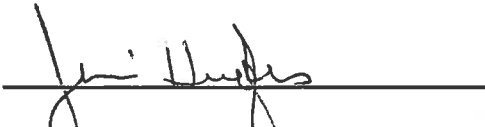
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

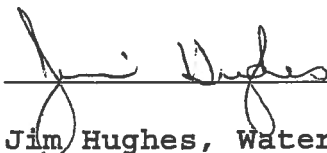
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average (Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

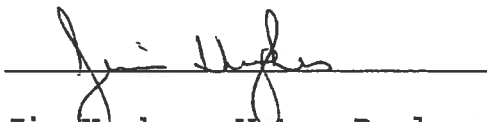
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

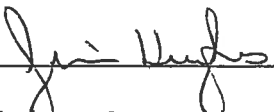
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/24/14
Date Received: 02/24/14
Sample Location: Zone A
Sample Matrix: Compost

Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: 02/24/14
Date Solids Analyzed: 02/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	71.4	22.5	<455
2	76.6	20.6	<424
3	62.0	23.0	<524
4	67.0	35.3	484
5	70.0	26.4	<463
6	66.5	35.7	<489
7	68.4	30.3	<474
8	62.6	38.7	<520
9	67.0	42.4	<485

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

3.12.14

Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-24-14 **Time:** 10:00 ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-24-11] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 2-24-14 Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: A Rows: 1 - 9 Date: 2-24-14 Time: 10:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

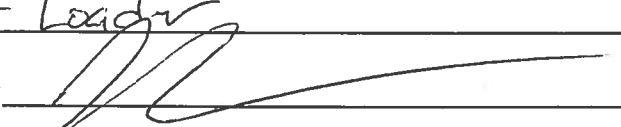
Zone: A Rows: 1 - 9 Date: 2-24-14 Time: 6:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campsteel Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Babbitt [Date/Time: 2-24-24/10:11 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campsteel Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Langer
This Certification is signed by: 

Date: 4-10-14] Time: 8] ☒ AM ☐ PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 2

Client's Name: <u>Dry Creek WRF</u>			Contact Name: <u>Chet P. Smith</u>			Sampler's Name (if other than Contact): _____										
Report Required For: <u>B. Solids</u> <u>Zone A Rows 1-7</u>				Number of Containers Sample Type A W S V B O <input type="checkbox"/> Air <input type="checkbox"/> Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other MATRIX	ANALYSIS REQUESTED								How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)			Collection Date	Collection Time												
1	Zone A Row 1		2-20-14	4:00												
2	2															
3	3															
4	4															
5	5															
6	6															
7	7															
Custody Record MUST be Signed	Relinquished by: _____			Date/Time: <u>2-20-14</u>			Received by: _____					Date/Time: _____				
	Sample Disposal: _____			Return to client: _____			Lab disposal: _____					Log# <u>701</u>				

ID #

Permit #

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 2 of 2

Client's Name: City of Cheyenne Contact Name: Chris L. Smith Sampler's Name (if other than Contact): _____

Report Required For:			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED										How Preserved HNO ₃ H ₂ SO ₄ 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)	
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time													
1	Zooch H Row 8		2-24	7:22 AM	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	J L 1 9																	
3																		
4																		
5																		
6																		
7																		

Custody Record MUST be Signed	Relinquished by: <u>Chris L. Smith</u>		Date/Time: <u>2-24-14</u>	Received by: <u>Chris L. Smith</u>		Date/Time: <u>2-24-14</u>
	Sample Disposal: _____ Return to client: _____ Lab disposal: _____					Log# <u>732</u>

ID # 1001-1214 Permit # 11.11.12-10002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

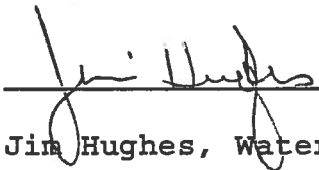
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

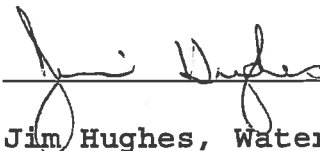
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average $((\text{Vol. Solids Reduction} = \text{VS in} - \text{VS out} / (\text{VS in} - (\text{VS in} * \text{VS out}))) (\text{Use Average}))$. The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

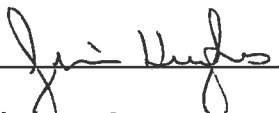
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

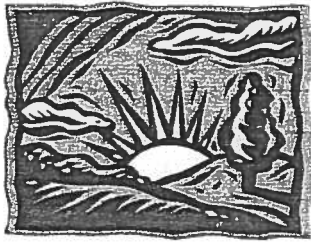
The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/24/14
Date Received: 02/24/14
Sample Location: Zone C
Sample Matrix: Compost

Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: 02/24/14
Date Solids Analyzed: 02/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	65.5	30.1	<495
2	63.3	29.2	<514
3	57.5	34.1	564
4	62.2	34.1	<523
5	62.1	40.1	522
6	57.9	38.6	<562
7	56.6	41.2	<574

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

3.12.14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-24-14] **Time:** 10:00] ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-24-14] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 2-24-14 Time: 10:00 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: C Rows: 1 - 7 Date: 2-24-14 Time: 10:00 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

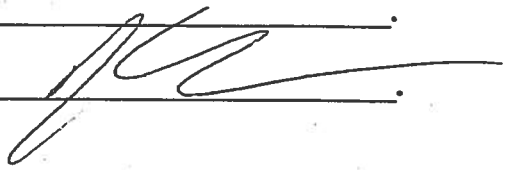
Zone: C Rows: 1 - 7 Date: 2-24-14 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek Water RF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Bahr] Date/Time: 2-24-14/10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stool Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Coade
This Certification is signed by: 4-10-14 

Date: 4-10-14] Time: 8 ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>Day Creek WRF</u>			Contact Name: <u>John</u>			Sampler's Name (if other than Contact): _____							
Report Required For: <u>Zone C Rows 1-7</u>			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED <div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> How Preserved HNO₃ H₂SO₄ 4°C HCL None </div> <div style="width: 15%;"> Sample Type Grab or Composite </div> <div style="width: 15%;"> Other Information (pH, Field Analysis, etc.) </div> <div style="width: 15%;"> Analysis Completed Yes / No (Lab use only) </div> </div>									
SAMPLE IDENTIFICATION (Name, Location, etc.)		Collection Date	Collection Time										
1 <u>Zone C Row 1</u>		<u>2-24</u>	<u>1:00</u>										
2													
3													
4													
5													
6													
7													
Custody Record MUST be Signed		Relinquished by: <u>John</u>		Date/Time: <u>2-24-11</u>		Received by: <u>John</u>			Date/Time: _____				
		Sample Disposal: _____		Return to client: _____		Lab disposal: _____			Log# <u>703</u>				

ID # 40-22131

Permit # 1041-6-2012

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

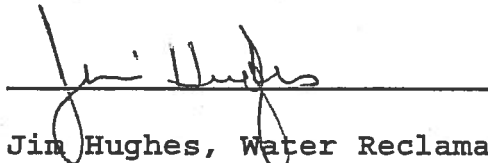
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

A handwritten signature in black ink, appearing to read "Jim Hughes", is written over a horizontal line.

Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

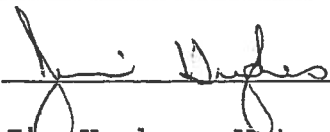
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

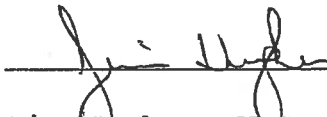
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

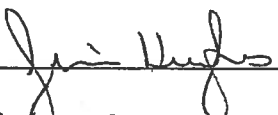
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/24/14
Date Received: 02/24/14
Sample Location: Zone D
Sample Matrix: Compost

Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: 02/25/14
Date Solids Analyzed: 02/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids %	Fecal Coliform/ Dry Gram Sludge
1	75.2	36.3	<432
2	71.5	37.8	504
3	75.7	35.7	476
4	64.4	36.5	504
5	72.0	37.7	1000

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed


Kent Loader, Laboratory Supervisor

9-10-14
Date:

Dry Creek WRF Laboratory
For: Fecal, TS & VS

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-24-14] **Time:** 10100] ☒ **AM** ☐ **PM**

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Dates and time of samples collected
- ☐ Sampling location documented
- ☐ Sampling types appropriate
- ☐ Sampling volumes recorded
- ☐ Name of person sampling
- ☐ Types of sampling containers
- ☐ Methods of preservation
- ☐ Sampling quality assurance/ quality control QA/QC available
- ☐ Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)
- ☐ Certification statement signed with each laboratory analytical report:
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.
- ☐ Chain of custody recorded

Date: 2-24-11] Time: 10:00] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of samples analysis
- ☐ Name of analyst
- ☐ All analyses are reported on dry weight basis
- ☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Date: 2-24-11 Time: 10:00] ☒ AM ☐ PM

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF

To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: 0 Rows: 1 - 5 Date: 2-24-11 Time: 10:00 ☐ AM ☒ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. *' **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

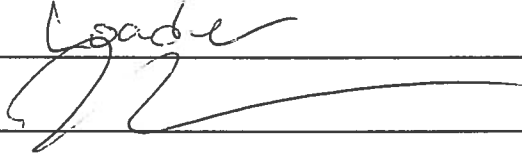
Zone: 1 Rows: 1 - 7 Date: 2-24-11 Time: 10:00 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Campstall Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chad Benbell] [Date/Time: 2-24-14/10:00 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Campstall Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Coade
This Certification is signed by: 

Date: 4-10-14] Time: 8] ☒ AM ☐ PM

Page 1 of 1

ID # WV-02039 Permit # WVG-IC002

Copies to: **White - Book in Laboratory** **Yellow - Laboratory Hard Copy** **Pink - Client**

Attachment: #4.

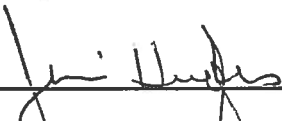
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

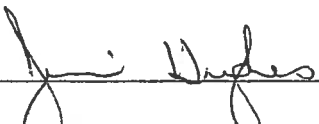
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ($\text{Vol. Solids Reduction} = \frac{\text{VS in} - \text{VS out}}{\text{VS in} - ((\text{VS in} * \text{VS out}))}$) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

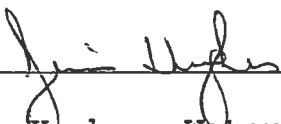
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

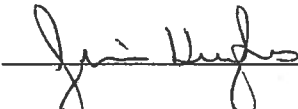
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger



ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02/25/14
Date Received: 02/25/14
Sample Location: Zone E
Sample Matrix: Compost

Sampled By: CB
Date Reported: 3/12/14
Date Fecal Analyzed: 02/25/14
Date Solids Analyzed: 02/27/14
Analyst(s): mw

EPA Method/Total Solids: SM 19th Ed 2540B
EPA Method/Volatile Solids: SM 19th Ed 2540E
EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	79.6	27.0	<408
2	78.3	32.5	<414
3	65.3	35.9	<498
4	73.0	29.8	<445
5	71.0	37.5	<458

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.
NA = Not Analyzed



Kent Loader, Laboratory Supervisor

9-10-14
Date:

Analytical Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ **Dates and time of samples collected**
- ☐ **Sampling location documented**
- ☐ **Sampling types appropriate**
- ☐ **Sampling volumes recorded**
- ☐ **Name of person sampling**
- ☐ **Types of sampling containers**
- ☐ **Methods of preservation**
- ☐ **Sampling quality assurance/ quality control QA/QC available**
- ☐ **Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13)
(Class A and B Biosolids)**
- ☐ **Certification statement signed with each laboratory analytical report:**
 - 1. Pathogen reduction
 - 2. Vector attraction reduction operates at Dry Creek WRF analysis samples.
Results from daily sheets and results, recorded daily.
 - 3. Management Practices
 - 4. Site restrictions
- ☐ **Class A sludge: average temperature, (volatile solids percent) and total solids
Dry sludge) once a month. Turn rows once a month, weather permitting.**
- ☐ **Chain of custody recorded**

Date: 2-25-14] Time: 9:15] ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

☐ Date and time of samples analysis

☐ Name of analyst

☐ All analyses are reported on dry weight basis

☐ Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

☐ Analytical quality assurance/quality control (QA/QC) available

☐ Analytical results available

☐ Chain of custody record

Date: 2-25-14 Time: 9:15 ☒ AM ☐ PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- ☐ Date and time of sample
- ☐ Name of analyst
- ☐ Analytical methods used
- ☐ Analyses and calculation results properly documented or verified
- ☐ All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1 quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
- ☐ Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
- ☐ Analytical quality assurance/quality control (QA/QC) available
- ☐ Analytical results available
- ☐ Chain of custody record

Zone: E Rows: 1 - 5 Date: 2-25-14 ~~9/15~~ Time: 9:15 ☒ AM ☐ PM

Analytical Sample Containers
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, *February, April, June, August, October, and December. **January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

1. * **Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
2. * Class B sludge < 2,000,000 MPN/gram
3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
4. Chain of custody record

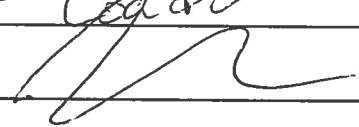
Zone: E Rows: 1 - 5 Date: 2-25-11 Time: 9:15 ☒ AM ☐ PM

Project Name: Biosolids
Location: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY] Zip Code: 82007
Samples Collected by: Chet Bakula [Date/Time: 2-25-14/9:15 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report."

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Dry Creek WRF
Address: 8911 Camp Stair Rd
City: Cheyenne] State: WY] Zip Code: 82007
Name of Analyst: Kent Lader
This Certification is signed by: 

Date: 4-10-14] Time: 8] ☒ AM ☐ PM

Cheyenne Board of Public Utilities

Water Reclamation Laboratory

Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Page 1 of 1

Client's Name: <u>D. J. ... WRF</u>			Contact Name: <u>...</u>			Sampler's Name (if other than Contact): <u>...</u>									
Report Required For: <u>Zone 6 Row 1-5</u> <u>For 1 MPP/100, TS + VS</u>				Number of Containers		ANALYSIS REQUESTED						How Preserved	Sample Type	Other Information	Analysis Completed
				Sample Type A W S V B O								HNO ₃ H ₂ SO ₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)				Collection Date	Collection Time	Air Water		Soils/Solids		Vegetation		Bioassay		Other MATRIX	
1 <u>Zone 6 Row 1</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
2 <u>Zone 6 Row 2</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
3 <u>Zone 6 Row 3</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
4 <u>Zone 6 Row 4</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
5 <u>Zone 6 Row 5</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
6 <u>Zone 6 Row 6</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
7 <u>Zone 6 Row 7</u>				<u>2-2</u>	<u>1 AM</u>	<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>		<u>1 MPP</u>	
Custody Record MUST be Signed		Relinquished by: <u>Det ...</u>			Date/Time: <u>2/10/00 11:00 AM</u>			Received by: <u>...</u>			Date/Time: <u>2/10/00 1:00 PM</u>				
		Sample Disposal: <u>...</u>			Return to client: <u>...</u>			Lab disposal: <u>...</u>			Log# <u>705</u>				

ID # ... Permit # ...

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.

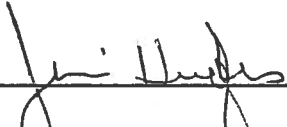
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

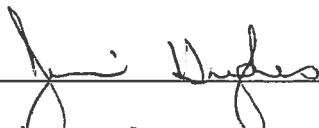
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in * VS out)) (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge
Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow
gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #6.

Dry Creek Water Reclamation Facility

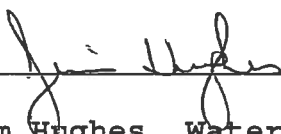
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

Attachment: #7.

Dry Creek Water Reclamation Facility

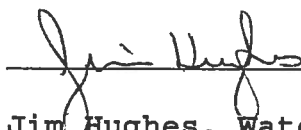
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



Jim Hughes, Water Reclamation Division Manger

2014 Geometric means.											
Dry Creek WRF											
Date									Date		
2/24/2014									2/25/2014		
Zone A			Zone C			Zone D			Zone E		
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm
1	2.66	<455	1	2.69	<495	1	2.64	<432	1	2.61	<408
2	2.63	<424	2	2.71	<514	2	2.70	504	2	2.62	<414
3	2.72	<524	3	2.75	564	3	2.68	476	3	2.70	<498
4	2.72	484	4	2.72	<523	4	2.70	504	4	2.65	<445
5	2.67	<463	5	2.72	522	5	3.00	1000	5	2.66	<458
6	2.69	<489	6	2.75	<562						
7	2.69	<474	7	2.76	<574						
8	2.72	<520									
9	2.69	<485									
Total	24.17			19.10			13.72			13.23	
Average	2.69			2.73			2.74			2.65	
Date									Date		
4/21/2014									4/22/2014		
Zone A			Zone C			Zone D			Zone E		
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm
1	2.72	<520	1	2.75	<556	1	2.63	<426	1	2.93	859
2	2.74	554	2	2.72	<523	2	2.72	<530	2	2.64	441
3	2.76	<578	3	2.67	<473	3	2.63	<428	3	2.70	496
4	2.75	559	4	3.34	2207	4	2.74	<545	4	2.69	<485
5	2.72	<523	5	2.72	522	5	2.97	934	5	2.66	<455
6	2.67	<467	6	3.04	1084						
7	3.81	6499	7	2.73	<540						
8	3.01	1023									
9	2.75	<565									
Total	25.93			19.97			13.69			13.62	
Average	2.88			2.85			2.74			2.72	

Date									Date			
6/9/2014									6/9/2014			
Zone A			Zone C			Zone D			Zone E			
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	
1	2.67	<470	1	3.543323	3494	1	2.725912	<532	1	3.029789	1071	
2	2.69	488	2	2.673942	<472	2	2.820858	662	2	2.705864	<508	
3	2.70	<501	3	3.450557	2822	3	2.677607	<476				
4	3.33	2151	4	2.718502	<523	4	3.0086	1020				
5	2.66	<456	5	3.547282	3526	5	3.540705	3473				
6	3.34	2209	6	2.744293	<555							
7	2.62	417	7	2.681241	<480							
8	3.61	4031										
9	2.99	984										
Total	26.61			21.36			14.77			5.74		
Average	2.96			3.05			2.95			2.87		
Date			Date			Date			Date			
8/26/2014			8/25/2014			8/25/2014			8/26/2014			
Zone A			Zone C			Zone D			Zone E			
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Row	GM	MPN/gm	
1	2.63	<424	1	2.66	<453	1	2.65	<442	1	2.65	<446	
2	2.66	<456	2	2.70	<498	2	2.71	<511				
3	2.63	<429	3	2.69	<494	3	2.72	<527				
4	2.71	<517	4	2.66	<455	4	2.74	<551				
5	2.69	<491	5	2.64	<441	5	2.69	<495				
6	2.73	<538	6	2.61	<410							
7	2.72	519	7	2.67	469							
8	2.65	<445										
9	2.99	986										
Total	24.41			18.63			13.51			2.65		
Average	2.71			2.66			2.70			2.65		

Date			Date			Date						
10/27/2014												
Zone A			Zone C			Zone D						
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm				
1	2.60	<402	1	2.62	<415	1	2.64	<441				
2	2.62	<419	2	2.63	<423	2	2.64	<432				
3	2.65	<444	3	2.61	<411	3	2.64	<438				
4	2.60	<396	4	2.66	<460	4	2.66	<459				
5	2.68	<476	5	2.67	<465	5	3.15	1412				
6	2.94	864	6	2.67	<463							
7	2.65	<445	7	2.65	<443							
8	2.63	<424										
9	2.69	<489										
Total	24.05			18.50			13.73					
Average	2.67			2.64			2.75					
12/29/2014												
Zone A			Zone C			Zone D						
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm				
1	2.63	<428	1	2.66	<458	1	2.69	490				
2	2.63	<431	2	2.72	<527	2	2.70	<501				
3	2.68	477	3	2.70	<497	3	2.66	<453				
4	2.76	<576	4	2.63	<431	4	2.66	<461				
5	2.69	<489	5	2.73	<541							
6	2.66	<459	6	2.71	<509							
7	2.67	<466	7	2.66	<454							
8	2.66	<454										
9	2.67	<463										
Total	24.05			18.81			10.71					
Average	2.67			2.69			2.68					

Attachment: #4.

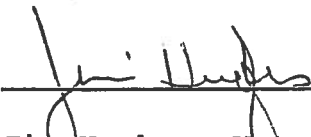
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

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Jim Hughes, Water Reclamation Division Manger

Attachment: #5.

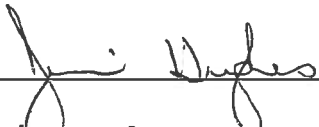
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ($\text{Vol. Solids Reduction} = \frac{\text{VS in} - \text{VS out}}{\text{VS in} - ((\text{VS in} * \text{VS out}))}$ (Use Average)). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

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Average: Total solids (change % to Mg/l (10000) (NRS & SRS):
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gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake
(mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L)
Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

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Dry Creek Water Reclamation Facility

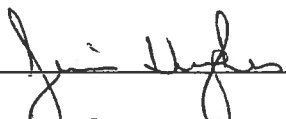
H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

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Attachment: #7.

Dry Creek Water Reclamation Facility

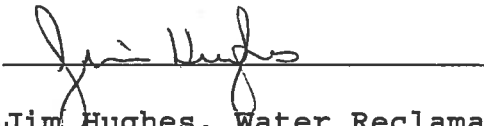
I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

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Jim Hughes, Water Reclamation Division Manger